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## INTRODUCTION

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This Report was originally prepared and distributed in proof as a "White" Report, intended to serve as a basis for discussion at the Tripartite Technical Conference on the Textile Industry which was held in Washington, D C, in April 1937

The Report is now reprinted with a minimum of alterations and with the addition of certain documents relating to the Textile Conference, including the texts of the conclusions adopted by it

In order to avoid any misconception as to the purpose and scope of the Report, the "Foreword" to the original proof is reproduced below

The Textile Conference, for which this Report has been prepared, is an experiment. It represents the first attempt by the International Labour Organisation to review the general situation of a worldwide industry, in order to explore the possibility of improving its social standards. In conformity with the terms of reference of the Conference, this Report attempts "to take into account all those aspects of the textile industry which may have a bearing directly or indirectly on the improvement of social conditions in that industry". Consequently it contains chapters relating to such matters as production, consumption, trade, tariffs, etc, with a view to sketching the economic background against which the problems of employment, wages, hours and working conditions must be viewed. The inclusion of chapters on these subjects does not, however, imply that the Conference should discuss commercial and economic policies as such. Reference to the economic, commercial and financial conditions in the industry is inevitable in considering "how the work undertaken by the International Labour Organisation in connection with the improvement of conditions in the textile industry can best be advanced". Such information on these subjects as it has been possible to collect and present in the short time available has therefore been included in the present Report. The Conference may perhaps be able to indicate how far it might be desirable to complete certain aspects of the picture of the industry given here, and how best such complementary information might be obtained. The Report as a whole is, however, directed towards a consideration of social conditions in the industry, and such economic, commercial and financial information as is given in it is intended to be subservient to that purpose.

A few words are also called for with regard to the documentary and other information used in this Report. While it is impossible to refer

to all the sources which have been drawn upon, acknowledgment should be made of some of those which have proved to be of particular value in the preparation of this Report. Such are the publications of the Economic Intelligence Service of the League of Nations, of the International Institute of Agriculture, of the Imperial Economic Committee (London), of the United States Tariff Commission, and other official bodies, and of such private organisations as the Joint Committee of Cotton Trade Organisations (Manchester) and of the Mitsubishi Economic Research Bureau in Tokyo, which have brought together data on the production of and trade in textiles in comparable and convenient form. The publications of these bodies have been invaluable in enabling the Office to compile the international statistical tables upon which the analyses in various chapters of this Report are based, though the data supplied are far from complete. At the same time, it is necessary to call attention as forcibly as possible to the wide gaps in and the meagre character of the statistical information on the labour aspects of this Report. Data on wages and hours are particularly imperfect. Even some of the advanced industrial countries do not supply adequate data to answer some of the simplest questions dealing with the hours of work and earnings of the workers in the textile industry. This paucity of information as regards labour conditions, earnings, hours of work and employment is particularly striking when contrasted with the fairly extensive information on production and trade. It is hoped that the deliberations of the Conference will stimulate Governments to compile the statistical data essential for a more complete picture of the labour and social conditions in the industry.

The Report in its final form is in two volumes. Volume I contains the fourteen chapters which constituted the first volume of the original Report. Volume II contains the statistical tables which formed Part I ("Statistics of Production, Consumption and Trade") and Parts II-V ("Labour Statistics") of the second volume of the original Report. Volume II of the present Report also includes a Record of the Proceedings of the Conference in Washington, comprising an introduction, list of members of delegations, committees and secretariat, and the texts of the reports of committees adopted by the Conference.

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## EXPLANATION OF SIGNS USED IN THE TABLES

### *In Chapters I-VIII, and in Chapter XIII*

The sign — signifies "figure nil or negligible"

The sign     signifies "information not available or non-existent"

### *In Chapters IX-XII*

The sign \* signifies "information not available"

The sign — signifies "information not yet received"

## CHAPTER I

### THE BACKGROUND AND THE POINT OF VIEW

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The present study of the economic and social aspects of the world textile industry is the result of a special interest in the subject on the part of the International Labour Organisation which is of long standing. The successive phases of the discussion which resulted in the present Report and the point of view by which this Study has been guided may be described here briefly.

#### I — FACTS AS A BASIS FOR ACTION

Already, at the Eleventh Session of the International Labour Conference in 1928, a resolution for an enquiry into working conditions in the textile industry was introduced by Mr Mitsusuke Yonekubo, the workers' delegate from Japan. In explaining the reasons for his resolution, Mr Yonekubo maintained that bad working conditions in the textile industry were characteristic not only of the Far East but also of Western countries, that the Western countries were coming to be more and more affected by the development of the textile industry in the Far East, and that the situation had given rise to much discussion which, however, was not based on adequate information. The delegate concluded "The world at present is in urgent need of more authoritative and objective information on all matters which affect the character of international intercourse. Fortunately, we can now look to the International Labour Office for such information, the accuracy and impartiality of which are unchallenged" <sup>1</sup>

The resolution, seconded by the workers' delegate from India, was adopted by the Conference by a vote of 54 to 21.

In pursuance of this resolution, an attempt was made by the International Labour Office to institute an enquiry into wages and

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<sup>1</sup> *Record of Proceedings*, International Labour Conference, Eleventh Session, 1928, pp. 354-357

hours in the textile industry in different countries. However, as a result of the difficulties of the subject, and especially of the world depression beginning in 1929, the enquiry had to be postponed.

The problems of the textile industry were again brought to the fore in 1935 in connection with the discussion of the reduction of hours of work. At the Nineteenth Session of the International Labour Conference in June 1935, Mr Arthur Hayday, the workers' delegate from Great Britain, presented a Resolution, in which he urged the necessity of discussing a reduction of hours of work in the textile industry<sup>1</sup>. Mr Hayday emphasised the special need of an International Hours Convention in the textile industry on the ground that the industry was highly mechanised and subject to such intense international competition as to make it impossible, even for a country whose workers were well organised, to secure decent conditions of employment owing to "terribly low wages and excessively long hours" in other countries<sup>2</sup>.

A new approach to the problem, from a larger point of view, was made at the same Session of the Conference by one of the Government delegates of the United States, Mr Walton H. Hamilton. In discussing the Director's Report, the American delegate agreed with the Director that it would be possible, on the basis of adequate research and of a willingness to improve social conditions, to eliminate much of the misery existing in different countries and in different industries. Mr Hamilton thought that the textile industry represented a specially appropriate case where this point of view might be applied. After analysing the technical, financial and international causes of "disorder" in the industry, Mr Hamilton said: "I should like to respond to the invitation which the Director gives in his Report by suggesting a very concrete study concerned with the world position of textiles. In that study statistics need to be gathered and all that relates to labour needs to be recorded. But the factors in the background that make for order and disorder must be fathomed out, and the intangibles which have their basis in custom and use need to be brought into the picture. All of this suggests something of the magnitude of the task. It will not represent a new venture on the part of the International Labour Office, but simply a continuation of the

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<sup>1</sup> The Governing Body at its Session in January 1935 had considered the advisability of placing the discussion of the reduction of hours of work in the textile industry on the Agenda of the 1935 Conference, but the proposal to do so had failed of adoption by one vote.

<sup>2</sup> *Record of Proceedings*, International Labour Conference, Nineteenth Session, 1935, p. 476.

studies which have already been begun " And he concluded " We are in the habit of looking to the International Labour Office for light, for understanding and for the knowledge that will ripen into action We do not want studies for the sake of studies—we want an understanding of the problem which will guide individuals, trade associations, labour unions and Governments alike to make an industry more orderly and to help it to meet a little more solidly the shock of the tumultuous course of events " <sup>1</sup>

The 1935 Session of the Conference decided, by a vote of 63 to 27, to adopt Mr Hayday's resolution, and the Governing Body at its Session in October decided by 17 votes to 6 to place the question of the reduction of hours of work in the textile industry upon the Agenda of the Twentieth Session of the International Labour Conference to be held in 1936 When the 1936 Session of the Conference met, it had before it a report of the Office on the Reduction of Hours in the Textile Industry The main question before the Conference with regard to the textile industry was the proposal of the Special Committee on the Textile Industry to adopt the single-discussion procedure This was rejected by the Conference by a vote of 54 against to 47 in favour The second and final discussion of the reduction of hours of work in the textile industry was referred to the Twenty-third Session of the International Labour Conference to be held in June 1937

The extended discussion at the 1936 Conference showed a definite desire on the part of various delegates for more information on the whole problem of the textile industry The Minister of Labour for Great Britain, Mr Ernest Brown, in addressing the Conference, stressed the idea that the International Labour Organisation, in considering labour conditions in various industries, should study " all the facts relating to industrial conditions—historical, racial, geographical, political and economic " <sup>2</sup> The workers' delegate from Japan, Mr Mitsu Kono, urged the adoption of a resolution requesting an enquiry into the conditions of work of persons employed in textile industries <sup>3</sup> One of the advisers to the employers' delegate of Great Britain, Mr Thomas Ashurst, made the following statement " We again assert that there is a lack of reliable information as to the hours, wages and working conditions obtaining in the various textile countries, and are firmly of the

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<sup>1</sup> *Ibid*, p 354

<sup>2</sup> *Record of Proceedings*, International Labour Conference, Twentieth Session 1936, p 54,

<sup>3</sup> *Ibid*, p 747

opinion that this should be forthcoming, in order that the facts internationally can be considered in true perspective " <sup>1</sup> Similar expressions were voiced by other delegates

It was in accord with this general feeling and in pursuance of the suggestion first made by the Government delegate from the United States in 1935, that Mr John G Winant and Miss Frieda Miller, United States Government delegates to the Conference of 1936, introduced a resolution for the calling of a Tripartite Technical Conference on the Textile Industry The resolution in part read as follows " It would be the purpose of this Conference to consider how the work already undertaken by the International Labour Organisation in connection with the improvement of conditions in the textile industry can best be advanced and to take into account all those aspects of the textile industry, which, directly or indirectly, may have a bearing on the improvement of social conditions in that industry " <sup>2</sup>

In further explaining the purpose of the resolution, Mr Winant said " We are asking employers, workers and Governments to take their part in exploring an industry on which millions of workers are dependent for their daily bread We want the facts In the end, we want action Let us take co-operative action, and place before the world the factual information on which wise decisions may be reached in protecting men and women engaged in and dependent on the textile industry " <sup>3</sup> The resolution was adopted by the Conference by a vote of 59 to 26

In accordance with the action of the Twentieth Session of the Conference, the Governing Body of the International Labour Organisation at its Seventy-seventh Session in November 1936 adopted a resolution to convene a Tripartite Conference on the Textile Industry, " to consider all those aspects of the industry which directly or indirectly may have a bearing on the improvement of social conditions in the industry "

## II — THE SCOPE OF THE STUDY

The demand for a comprehensive and thorough study of the textile industry has thus come from several major textile-producing countries and has been supported by members of the three groups represented in the International Labour Organisation The discus-

<sup>1</sup> *Ibid.*, p. 319

<sup>2</sup> *Ibid.*, pp. 384-385

<sup>3</sup> *Ibid.*, p. 385.



sions which have taken place on the subject reveal either an expressed or an implied belief that a clarification of the economic factors involved in the textile industry cannot but be helpful to an understanding of its labour and social problems

It is this point of view which has guided the present Study In carrying it out, every effort has been made to proceed without bias or preconceived notions, to face the facts as they are, and to analyse them as critically as possible in order to see what story they tell

It is necessary, however, to point out that this Study has had to be made under a number of limitations which have prevented as complete an answer to the questions raised as might be desirable To begin with, the shortness of time has limited greatly the capacity to deal adequately with all aspects of the problem Considering the size of the industry, its complexities, the intricate structure of its trade relations, the dynamic changes which it has undergone, and the many countries involved, it was out of the question to cover the entire area of research within the time available That it has been possible to go over as much ground as is surveyed here, has been largely due to the fact that the Office has had access to a considerable amount of material on various aspects of the industry

Another limitation in the preparation of this Report has been the gaps in the information available In Volume II (Statistical Appendices) some of these gaps have been clearly indicated, with regard to the statistics on wages and hours of work, on employment and unemployment The information on production and trade is good, but still in many respects incomplete Above all, relatively little information is conveniently available on profits, investments, capitalisation and other financial aspects of the industry, on consumption, costs of production, productivity, etc., knowledge of which would be essential for a thorough examination of all the problems which vex the industry to-day It is this lack of information which presents one of the greatest challenges to the industry

The limitations indicated have affected the scope of this Study in several ways First, more attention has been given to certain branches of the industry than to others

turing, trade and labour aspects and only incidentally to finance, such as capitalisation, credit conditions, etc

Despite these limitations, it is hoped that the present Study will provide an adequate basis for a discussion of the social problems of the textile industry. In the eleven chapters which follow most of the available material has been brought together which gives a picture of the nature and extent of the textile industry, of its importance, of the sources from which it draws its raw materials, of the localisation of its manufacturing plant, both spinning and weaving, of the distribution of its world trade, of the changes which have taken place in its trading system, of the major factors in international competition which determine the present struggle for markets, and of the wages and working conditions of those employed in the industry. Following these chapters an attempt is made in Chapter XIII to interrelate the economic and social factors in such a way as to indicate the economic conditions upon which an improvement in labour standards depends. Finally, in the concluding chapter a summary is presented of the main facts brought together in this Report and of the conclusions to which they point.

This Report is in many ways a pioneer effort. In so far as the Office is aware, no studies dealing with a major world industry in both its economic and social aspects have been made heretofore. This is the first time that an attempt is made to portray a world industry in all its manifestations, in order that a social policy may be elaborated with full understanding of the facts. It is for those who are responsible for the welfare of the textile industry to study these facts and to apply them to the problems which confront the industry.

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## CHAPTER II

### SCOPE AND CHARACTER OF THE TEXTILE INDUSTRY

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#### I — DEFINITION AND SCOPE

In the official statistical literature of different countries the textile industry is usually defined as a series of diverse but inter-related trades. The Census of Production of the United Kingdom for 1930, for instance, includes the following specific trades under the general category of the textile industry

Cotton spinning, cotton weaving, woollen and worsted, silk and artificial silk, linen and hemp, jute, hosiery, textile finishing, lace, rope, twine and net, canvas goods and sack, asbestos goods and engine and boiler packing, flock and rag, elastic webbing, coir fibre, horsehair and feather, roofing felts, packing trade

The Biennial Census of Manufactures of the United States of America specifies the following types of commodities and services under the general classification of textile mill products

Cotton goods, cotton small wares, lace goods, knit goods, silk and rayon manufactures, woollen goods, worsted goods, felt goods, wool, hair, or jute, hats, wool felt, hats, fur felt, carpets and rugs, wool, other than rag, wool shoddy, wool pulling, wool scouring, cordage and twine, jute goods, flax and hemp, dressed, linen goods, mats and matting, grass and coir, hair cloth, dyeing and finishing textiles, cloth sponging and refinishing

The Factory Statistics of Japan subdivide textile manufacturing into the following branches

Silk reeling, rayon yarn, cotton yarn spinning, silk yarn spinning, flax yarn spinning, woollen and worsted yarns spinning, twisted yarn, cotton weaving, silk weaving, combined silk and cotton weaving, flax weaving, wool weaving, rayon weaving, knitted goods, flax braid, etc., dyeing and finishing

An examination of the above categories indicates that, for purposes of economic and social analysis, the textile industry must be defined in rather broad terms. The present Report will follow the definition of the industry given in another Report of the International Labour Office, which is as follows

The textile industry consists in the manufacture of yarn and piece goods, hosiery, lace, net of various kinds, etc., mainly for the purposes of clothing and furnishing.

The manufacture of textiles begins with the cleaning and refining of the raw materials and ends with the finishing of the manufactured products mentioned above. It comprises several groups of operations which are not always separate and which may roughly be classified in four different stages: (1) cleaning, softening, and preliminary preparation of the fibre, (2) drawing and twisting the fibre into yarn, (3) weaving, (4) bleaching, dyeing, printing and finishing the fabric. Some of the processes in the last group are sometimes carried out on the yarn before it is woven.

These four groups cover all the operations performed on wool, cotton, silk, linen, hemp, and jute, on textile materials less commonly used such as ramie, sea silk, etc., as well as on artificial silk—which will be designated by the term "rayon" in this Report—and other synthetic fibres, with the exception, however, of the manufacture of rayon yarn which is based on a purely chemical process.

The following branches are usually excluded: (1) the weaving of materials which may be regarded as thread, but the preparation of which has nothing in common with the technique of spinning, e.g. straw, esparto grass, etc.; (2) processes for the impregnation or coating of cloth for special purposes, e.g. oil cloth, rubberised cloth, etc.<sup>1</sup>

As indicated in Chapter I, the present Report is confined primarily to the study of the cotton, wool, silk, rayon (artificial silk), linen and jute branches of the industry; the manufacture of a number of products, such as all articles of hemp, together with hosiery, embroidery, lace, and various types of netting, etc., is excluded. It is hoped that the information brought forward in connection with the branches of textile manufacturing covered in this Report will shed some light also on the branches excluded from the analysis.

## II — THE DIVERSITY OF THE INDUSTRY

For reasons indicated in the section which follows, the textile industry will be treated in this Report as a unified entity. However, for a complete picture of the industry, it is necessary to keep in mind also the diversity of the several branches and divisions of the industry. At least four major differentiations must be recognised: it is expedient to differentiate the textile industry (1) by the raw material (fibre) employed, (2) by manufacturing processes as related to industrial organisation, (3) by the nature of the semi-

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<sup>1</sup> INTERNATIONAL LABOUR OFFICE *Reduction of Hours of Work in the Textile Industry*, Report to the Twentieth Session of the International Labour Conference (Item VII of the Agenda), Geneva, 1936, p. 9. In the following pages this Report is referred to as Report VII.

finished or fully manufactured products which emerge at successive phases of production, and (4) by the relative importance of particular social-economic problems for different branches of the industry in various countries and regions

### *Raw Materials*

The principal (fibre) raw materials <sup>1</sup> of textile manufacturing are cotton, wool, silk, jute, flax (for linen), wood pulp (for rayon), various hemps, etc. The technological reasons for differentiating the industry by these raw materials may be summed up as follows

As the various textile fibres have very different physical characteristics, methods of spinning necessarily vary according to the fibre used. In weaving, however, the principles are the same for all kinds of textiles.

As regards spinning, different methods are used for silk, for the harder fibres (hemp and flax), and for cotton and wool respectively <sup>2</sup>

In addition to technological, important economic differences arise in the various branches of the textile industry corresponding to the raw material used. There are differences in the character of localisation, in the degree of competition for markets, in the extent and concentration of foreign trade, etc. For instance, cotton mills are found in almost all countries with even a moderate degree of industrialisation, the export markets for cotton manufactures are as wide as the whole world of foreign trade. In contrast, silk textiles show a much more limited structure both of world production and of world trade. Only a few countries are important producers of raw silk, world trade in raw silk consists largely in a flow of output from the reeling establishments of Japan to the manufacturing plants of the United States, while the bulk of trade in finished silk products binds together a few specialised manufacturing countries (France, Italy, Switzerland, etc.) with markets for the most part limited to countries of advanced industrial or agricultural development (Argentina, the United Kingdom, the United States, etc.)

Striking contrasts exist also in the international aspects of jute and wool textiles. Production of raw jute is practically a monopoly of India, which likewise enjoys a virtual monopoly of world exports of that commodity. Owing to the important agricultural and industrial uses of jute, its export markets are widely distributed.

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<sup>1</sup> The qualification "fibre" is advisedly employed. Chemicals and dyes are also primary raw materials, semi-finished products (yarns, tops, etc.) are the "raw materials" or subsequent processing.

<sup>2</sup> *Report VII*, pp. 9-10.

On the other hand, the producing, exporting and importing centres for wool textiles are highly diversified, very much as in the case of cotton textiles

It is also important, from the point of view of the diversity of the textile industry, that the various textile materials, although competitive with one another over a wide range, should be, in considerable measure, put to different consumption uses. The *Report on the Cotton Textile Industry* prepared in 1935 by a Cabinet Committee for the President of the United States, after first pointing out that the major uses of textile fibres are (1) wearing apparel, (2) agricultural and industrial, and (3) household, then proceeds to indicate

In the three major fields there is considerable overlapping in the use of the different textile fibres and various factors determine which will be used. For certain articles the consumer's preference is the dominating influence, for some articles both consumer preference and price are important, for others, relative prices, alone, of the textile fibres are of primary consideration, and for still others, physical characteristics govern the type of textile fibre used.

Generally speaking, the use of cotton has expanded in the household and in the industrial and agricultural field, and has decreased in use for wearing apparel. During the depression, the use of cotton for wearing apparel has increased as a percentage of the total of cotton consumed, owing to the fact that the use for wearing apparel has decreased less than the use for industrial, agricultural, and household purposes.

In industrial and agricultural activities the textile fibres which compete with cotton are jute and other vegetable fibres, such as hennequin and paper, although in a few instances during recent years rayon has been used for some industrial purposes, such as for covering electric wires. In the manufacture of automobiles, wool and mohair are used as upholstery material in competition with cotton, and for a number of years experiments had been made with rayon for use in the manufacture of automobile tyres.

For household uses, cotton clearly predominates, although other textile fibres are used. Wool is used for blankets, and for this purpose to a degree competes with cotton. Linen is used for table-cloths, napkins, hand towels, pillow-cases, and occasionally for sheets. Rayon has been popular at times for draperies and bed-spreads.

It is very difficult to characterise competition between various textile fibres for articles of wearing apparel. Cotton, wool, silk, rayon, and other fibres are used. It is generally recognised that style and consumer preference play an important part in the kind of fibre of which wearing apparel is made. For certain types of clothing cotton is used almost exclusively, while for other types of clothing, cotton is used very little if at all.<sup>1</sup>

<sup>1</sup> UNITED STATES 74 CONGRESS, 1 Session Senate Document No. 126, Washington, 1935, pp. 86 and 87. This report will be referred to hereafter as the Cabinet Committee Report.

*Manufacturing Processes and Industrial Organisation*

In a broad sense, the operations in textile manufacturing, regardless of the material used, follow four successive phases, of which the first three are primarily mechanical and the last largely chemical

- (1) The fibre must be cleaned, softened or otherwise prepared in a preliminary manner,
- (2) After such preliminary preparation the fibre must be drawn or twisted into yarn,
- (3) The yarn must then be woven into a tissue or fabric,
- (4) The tissue or fabric must finally be bleached, dyed, printed or otherwise finished <sup>1</sup>

However, there are differences in these processes, made necessary by the nature of the fibres used, which are described in an earlier Report of the International Labour Office as follows

As regards spinning, different methods are used for silk, for the harder fibres (hemp and flax), and for cotton and wool respectively

In the manufacture of silk the process of spinning consists in unwinding a continuous thread of the cocoon and in joining several of these threads without twisting, the raw silk thus obtained is then made into one thread by drawing and twisting (throwing) after scouring with soapy water

Flax and hemp fibres are much shorter, and as they are stuck together and to the outside of a plant they first have to undergo various processes for separating, cleaning, and softening them. These processes are retting (treatment by physical, chemical or bacteriological agencies), scutching or hackling, and combing. The subsequent operations are the same as those performed on wool and cotton after carding

Cotton and woollen fibres are not more than about eight inches in length,<sup>2</sup> but they are not stuck together and have a certain natural flexibility. The first step is that of opening the bales and breaking them up, which eliminates most of the foreign bodies contained in them, followed in the case of wool by scouring with lukewarm water and an alkaline solution to remove the grease. Next comes carding, which completes the cleaning of wool and cotton, and combing, which separates the long fibres from the short.<sup>3</sup> The textiles leave the carding and combing machines in the form of a sheet of clean fibres arranged in parallel rows, which by passing through a series of drawing frames are transformed into a gradually

containing the thread and that on which the yarn is wound revolve at different speeds, and mule or self-acting frames on which the thread is drawn by the movement of the bobbin carriage. In both cases, twisting is effected by the rotation of the bobbins and a device for guiding the thread.

By weaving is meant the process of transforming the yarn into fabric. The first step is warping, which consists in stretching a number of parallel threads to form the warp between the beams of the loom. These warp threads are passed through rings or eyes, attached to a system of controls, and form two layers which are alternately raised and lowered by means of strings. At each rise and fall of the loom a shuttle is passed between the two layers either automatically or by hand, this contains a spool holding the weft thread, which passes from left to right and vice versa to form the fabric by interlacing with the warp threads.

Bleaching, dyeing and finishing may be performed either on the yarn or on the finished cloth. The processes involved are very largely chemical.

Finishing includes physical processes such as fulling, which consists of packing and pressing the threads together by passing the cloth through rollers or under a press, singeing or burning away loose threads and hairs by heated rollers or a naked flame, and chemical processes. The latter include mercerising (treating cotton yarn with caustic soda and passing it over rollers to give it a sheen), shrinking, which is usually done by steam, and sizing, consisting in coating the cloth with a preparation which stiffens and strengthens it and gives it a gloss.

Lastly, there are also the operations of tenting, measuring and folding.<sup>1</sup>

Running parallel to these differences in operating techniques are variations of industrial structure, variations which are revealed when comparisons are made between different countries and among the several branches of the industry in the same country. It is well known, for example, that the cotton textile industry in the United Kingdom is characterised by a specialisation of enterprises. Thus, spinning (subdivided into American and Egyptian), weaving, and finishing (subdivided into bleaching, dyeing and printing divisions), as well as raw cotton brokerage and merchanting of yarn or cloth, all constitute separate sections. In 1927 the Committee on Industry and Trade (Balfour Committee) saw fit to devote considerable attention to the question of whether or not British finishers of cotton cloth on commission, by virtue of their superior commercial organisation were able to levy unduly rigid charges upon the "shipping" (export) merchants, and thus presumably to apply a quasi-monopolistic pressure on prices which eventually impinged on the spinning and weaving sections of the industry.<sup>2</sup>



The Balfour Committee also drew attention to a significant difference in commercial organisation between the woollen and worsted branches of wool textile manufacturing in the United Kingdom. The Committee found that it was quite usual in the woollen branch for a single firm "to carry on all the processes from the preparation of the raw material to the weaving and frequently the dyeing and finishing of a cloth", in the worsted branch, it was common for individual firms to confine themselves to a single process. Such different processes organised as distinct spheres of business enterprise were specified as wool buying, top making and combing, spinning, warping and sizing, manufacturing (or weaving), dyeing and finishing<sup>1</sup>.

In the United States, the business organisation of cotton textile manufacturing is very complex. The extent and nature of this complexity may best be indicated by quoting from the Report of the President's Cabinet Committee on the Cotton Textile Industry.

Mill units are not only widely scattered geographically but are also, as regards the bulk of the industry, small in size, independent in ownership, and specialised as to character of output. Moreover, the majority of the mills do not produce a finished product from the standpoint of the final consumer, but merely supply the raw material for the next processing agency. The average mill, therefore, viewed singly, does not have either the volume of output or the character of product which justifies any large independent marketing organisation.

house    The broker                    serves as intermediary between buyer  
and seller    He makes contacts with commission houses and con-  
verters                    1

The Cabinet Committee Report notes the existence in the United States of highly integrated cotton manufacturing enterprises, in which the finished product may go through " the spinning, weaving, converting, finishing, and wholesaling operations without a change of ownership or control " Where there is no integration of manufacturing, on the other hand, the progress of the textile product involves each of the following financial steps

- (1) From spinning mill to weaving mill through the agency of commission house or a yarn broker,
- (2) From weaving mill to converter by way of a commission house,
- (3) From converter to finisher, a transfer of operation but not of ownership,
- (4) Sale from converter to garment manufacturer, wholesaler and retailer, either with or without the services of a broker <sup>2</sup>

In Japan practically all the importing of raw cotton and a large fraction of the cotton cloth export trade are in the hands of three large-scale merchant houses The spinning and weaving sections of the cotton industry are distinct for home market cloth, the weaving being done largely by small establishments with yarn purchased from the few big integrated spinning-weaving undertakings dominant in the field of spinning These integrated enterprises account for the great bulk of the export cloth, for the purposes of their weaving about 25 per cent of all the cotton power looms in Japan have been installed Some of the largest spinning-weaving undertakings maintain their own bleaching and dyeing departments, which process a large part of all bleached cotton fabrics exported from Japan In sum, while spinning is reserved for the integrated undertakings, the weaving of cloth is divided between the big

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<sup>2</sup> *Cabinet Committee Report*, pp 118-119

spinners (largely export market) and medium and small weaving plants scattered all over the country (mainly home market) <sup>1</sup>

Most students of the world textile industry agree that the commercial organisation of cotton manufacturing in Japan is very systematic, integrated and efficient. It is especially significant, therefore, that the spinning and weaving branches should be distinct in the character of their business set-up, at least when the large-scale spinning mills are contrasted with the small-scale weaving sheds. It is also significant that the import trade in raw cotton and the export trade in cotton cloth should be more highly centralised and co-ordinated in Japan than in any other country.

#### *Nature of Products Semi-finished and Finished*

The third major differentiation concerns the nature of the products, semi-finished or fully manufactured, which emerge at successive stages in textile manufacturing. Taking the world as a whole, the markets for textile semi-manufactures are exclusively industrial markets. For fully finished products, on the other hand, personal and household uses are more important than industrial. Within any one country, moreover, the production of textile semi-manufactures often is destined for home and foreign outlets different in pattern from the markets for finished textiles. In part, the resulting problems go back to the analysis of manufacturing processes as conditioned by form of industrial organisation, in part, they are related to the differing sensitivities of the several branches of the textile industry to structural and cyclical changes. It will suffice here to note that yarn and cloth reacted in differing fashions to the profound structural and cyclical changes operating from 1925 to 1935.

#### *Relative Importance of Social-Economic Problems*

As a result of the differences sketched above, based on materials, processes and nature of product, the various branches of the textile industry are unequally sensitive to general economic developments. The several textile trades are not equally responsive to the influences of the business cycle or to the effects of structural changes. This leads further to the rise, in different countries or districts, of special

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<sup>1</sup> For recent discussions of the organisation of textile manufacturing in Japan, see MITSUBISHI ECONOMIC BUREAU *Japanese Trade and Industry*, London 1936, Chapter VIII, P.E.P. INDUSTRIES GROUP *Report on the British Cotton Industry*, London 1934, pp. 116-122, *Cabinet Committee Report*, pp. 130-134.

economic problems attributable to the specific geographic distribution of the various branches of the industry. The specific impacts of cyclical and structural changes on the several branches of textile manufacturing the world over are made clear in the subsequent chapters of this Report. A few illustrations may nevertheless be helpful here. The production of rayon yarn, for example, increased continuously and at a rapid rate from 1924 to 1936, notwithstanding the general industrial fluctuations of these years. Similarly, the production of raw silk—at least in Japan, which accounts for the bulk of the world total—remained rather resistant in volume to business cycle forces from 1925 to 1934. On the other hand cotton manufacturing activity, as judged by mill consumption of raw cotton, fluctuated, from 1926 to 1936, in close correspondence with the general curve of the business cycle. Activity in jute manufacturing, a commodity consumed principally in agricultural and industrial uses, likewise varied in accord with the worldwide swing of the business cycle.

Divergences between the various textile products are found also in their patterns of world trade during the period 1925-1936, as is shown in detail in Chapter VI. This resulted not only from differences in the sensitiveness of the several textiles to cyclical influences, but also from varying effects of the widespread pursuit of economic self-sufficiency by the nations of the world. In many countries domestic expansions of textile manufacturing took place at the expense of pre-existing channels of international trade. The process of expansion made it necessary, however, to maintain, or even in some cases to increase, imports of semi-finished textile products. Thus, while the volume and value of textile production contracted severely between 1929 and 1935, trade in yarns, tops, and other semi-finished products declined much less than did trade in piece goods, cloth and other finished products.<sup>1</sup>

Finally, it is necessary to note the special problems of particular countries and regions. Striking and familiar examples are presented by the problem of the cotton textile industry in the United Kingdom as compared with that of Japan. Since the World War, the cotton industry in the United Kingdom has suffered from a prolonged and drastic contraction of its export markets. Thus in 1913 the United Kingdom exported 7,075.3 million linear yards of cotton piece goods. By 1924 exports had declined to 4,585.1 million linear yards, and fell further to 2,013.4 million linear yards in 1935. In

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<sup>1</sup> For further analysis, see Chapter VI.

contrast, the volume of Japanese exports of cotton piece goods has expanded steadily, increasing from 1,418.8 million square yards in 1928 to 2,725.1 million in 1935.

In the United States, to take another example in the field of cotton textiles, the economic problems of New England mills have developed under conditions totally different from those of the southern mills.<sup>1</sup>

Similarly, in India, mills in Bombay, the original manufacturing centre, have been suffering for many years from a sort of chronic depression largely attributable to the shifting of productive capacity toward "up-country" districts, particularly Ahmedabad.<sup>2</sup>

As regards wool textiles, such countries as the United Kingdom, France and Japan are very sensitive to the influences operating upon world markets. In 1930 and 1933, 36 per cent and 24 per cent respectively of the United Kingdom's output of woollen and worsted tissues in volume were exported. In 1928 and 1935, the northern French mills exported 38 and 13 per cent by value respectively of their total wool tissue production, while Japan exported, in value, 2 per cent of its wool tissues in 1929 and 11 per cent in 1934.<sup>3</sup> Wool manufacturing countries such as the United States and the U S S R, in contrast, are much less sensitive to the forces which affect the currents of world trade. Although the U S S R has a substantial production of wool tissues, its foreign trade in such tissues is very small. United States woollen and worsted mills produced, in 1933, manufactured goods worth \$445 million, as compared with exports of woollens in that same year of \$1.1 million.

It is clear that textile industries exposed to the disturbances of world commerce have to grapple with somewhat different problems than textile industries orientated primarily towards domestic markets. To differentiate the problems of the textile industry by countries and regions is thus important in giving concrete form to the concept of a world textile industry.

### III — THE UNITY OF THE INDUSTRY

Although the existence of many important sub-industries, each facing a specific complex of problems, must be kept in mind,\*the many characteristics which these sub-industries share in common

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are so important as to justify the concept of the textile industry as a unit. More particularly, for reasons indicated below, textile manufacturing has to be regarded as a unified entity in the discussion of proposals to introduce, internationally, major reforms in conditions of employment. To begin with, the various textile materials minister substantially to the same groups of economic wants of individuals and families for articles of clothing, of households for furnishing, of industrial and agricultural enterprises for semi-finished and finished fabrics. In the United States, for instance, according to the *Cabinet Committee Report*, "estimates for all textile fibres indicate that normally about two-fifths is used for wearing apparel, another two-fifths for agricultural and industrial purposes, and about one-fifth in households". The same Report also refers to trade estimates indicating that at present more than half of the volume of cotton cloth produced in the United States is used for manufacturing and farm purposes, it gives statistics on rayon shipments by trades which show that in 1934 about 68 per cent of rayon tissues were used for woven goods and the balance for knit goods, it mentions that probably 75 per cent of the jute used for agricultural and industrial purposes is used for bags<sup>1</sup>; and analyses the fields of use for woven goods produced by woollen and worsted mills in 1929 and 1933 as follows<sup>2</sup>

UTILISATION OF WOOLLEN AND WORSTED WOVEN GOODS,  
UNITED STATES, 1929 AND 1933

Field of use	Percentage of total	
	1929	1933
Wearing apparel	74.4	78.1
Agricultural and industrial	2.4	2.5
Household	8.8	11.1
Unclassified	14.4	8.3
	100.0	100.0

<sup>1</sup> Of the jute bags, 89 per cent for mill feed, 13 per cent for fertiliser, 9 per cent for potatoes, 10 per cent for the grocery trade, 8 per cent each for wheat and exported flour, and 13 per cent for other purposes.

<sup>2</sup> Omitting, however, carpets and rugs. All figures on the uses of textile fibres in the United States from *Cabinet Committee Report*, pp. 86-90.

In Germany a detailed analysis of the uses to which the textile production of 1928 was put gave the following results (in percentages of value) <sup>1</sup>

GERMANY, FIELDS OF USE OF 1928 TEXTILE PRODUCTION  
IN PER CENT OF VALUE

	For clothing	For furnishings	For industrial and agricultural uses
All cloth fabrics			
Silk	83	17	0
Rayon	71	27	0
Wool	80	18	2
Cotton	43	54	3
Flax, hemp, jute and sisal	34	22	44
Knit goods	100	—	—
Total	71	24	5

Although no conclusive international estimates appear to be available, general knowledge suggests the validity of certain important generalisations, for example, jute textiles are largely produced for industrial and agricultural uses (that is, for sacks, bags, etc.), silk and rayon textiles, largely for clothing (dress materials, hosiery, etc.) As among cotton, wool and linen, linen probably finds its chief uses in household furnishings and wearing apparel, wool in articles of clothing and in carpets and upholstery, while the industrial and agricultural uses of cotton would appear to be, at least in the United States, of equal importance with its personal and household uses. In general, the patterns of utilisation vary from country to country, but in all countries all textile fibres are put to all three uses indicated. *They are thus in a high degree substitutive and competitive.*

The subject is well summarised by two students of the problem of the place of raw materials in modern industrialism. With reference to cotton, they remark

The most ambitious statistician would hardly dare to try to arrange the ultimate uses for cotton in order of their importance. From 80 to 90 per cent of the raw cotton consumed in the United States goes into woven goods. The census figures show that more sheeting is manufactured than any other one type of cloth, using about 16 per cent of the raw

<sup>1</sup> GERMAN INSTITUTE FOR BUSINESS RESEARCH (Institut für Konjunkturforschung), Berlin *Weekly Report*, Vol VIII, No 30/31, 7 August 1935

cotton consumed in the United States. But that does not mean that supplying the beds of the world with sheets and pillow-cases is cotton's most important function. Sheeting is used for bags, imitation leather, automobile tops, raincoats, linings, shirts, smocks, and a number of other things, including sheets and pillow-cases. Print cloth takes about ten per cent. of the cotton consumed in the United States. It is used widely for clothing and has a variety of other uses including meat coverings used by packers, umbrella cloths, and artificial flowers. Six per cent. of the cotton consumed in the United States goes into tyre fabrics and cords, which, strangely enough, are practically all used for tyres. A list of all known uses for cotton would doubtless contain thousands of items. That needs for cotton goods have changed and are changing is illustrated by the fact that the rubber trade, the automobile industry, and makers of wall coverings, artificial leather are to-day using cotton sheetings, drills, muslins, ducks, lawns, sateens, osnaburgs, yarns, and raw cotton in many ways unknown a quarter of a century ago.<sup>1</sup>

As regards wool, the same writers allude to the continued substitution of cotton, silk and rayon for that material, and continue



raw materials for certain finished commodities, the various textile fibres are largely interchangeable. Hosiery and other knit goods are made of silk, cotton, rayon, wool, or mixtures thereof. Wool, cotton, silk or artificial fibres furnish the raw materials of men's or women's clothing. Wool, mohair, cotton, and jute are used as upholstering materials. Experiments are now in progress to substitute rayon for cotton in the manufacture of automobile tyres. Hemp, sisal, jute and cotton are employed for rope, canvas, cordage and twine, cotton and jute for bagging. Cotton, wool, linen and rayon are all employed in household furnishings, etc. Of course, the different textile fibres are not, technologically, completely interchangeable, for there are certain uses of textile products where physical characteristics govern the type of textile fibre used.<sup>1</sup> What matters for economic analysis is that consumers' preferences as determined by climate, convenience, habit, fashion, and technical suitability, in the context of the pricings of the different textile materials, still leave room for a very large range within which the several fibres compete directly with one another. The relative importance of these factors, especially of price, in determining the interchangeability of textile fibres, is discussed at length in the *Cabinet Committee Report*.

The price charged the consumer for a cotton fabric or article is still a governing influence on choice.

Other fibres, as well as paper, wood, metals, and many more materials, are constantly being offered in substitution for cotton. Paper towels, napkins, twine, handkerchiefs, and sacks have undoubtedly taken some of the market from cotton fabrics. Wooden blinds have replaced cotton-fabric shades. Metal awnings and tennis nets are a few of the comparatively new metal products in the array of competition.

Cotton's competition with some of the other fibres for personal use meets one of its strongest opponents in the form of considerations of economy. A cotton dress may cost the consumer less than a silk or rayon garment, but during the course of its life or vogue the cotton dress has to be cleansed and refreshed much more often than the other. If this work is done outside the home, the total upkeep is a financial burden of proportions sufficient to influence original choice. Much the same considerations pertain to cotton versus silk and synthetic-fibre underwear and hosiery.

In the competition between textile fibres, price advantage is of unquestioned importance, but is modified in varying degree by factors that have to do with relative utility, adaptability, quality, and style. Its importance in the whole chain of controlling factors is probably in inverse ratio to the price spread and general economic conditions.

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<sup>1</sup> Such characteristics are durability, tensile strength, impermeability, heat resistance, capacity to take dye, etc. Thus, regardless of price, rayon is unsuitable for bagging or cordage, while silk, because of its lightness and strength and despite its cost is eminently suited for airplane parachutes.

Industry invariably seeks to utilise price differentials. This urge is always emphasised in a period of depression or stagnation.

Between cotton and rayon as the price differential narrows, competition becomes keener. The prices of the two may never meet—indeed, the spread may remain fairly substantial—but at this point style acceptance, a most important factor, steps in to shorten the gap.

In most competition between cotton and jute (and likewise between silk and rayon) the price factor is of great and probably controlling importance for products at all readily adaptable to the same purposes. However, in the competition between cotton and rayon, or cotton and silk, the emphasis frequently rests more on the utility and style factors than on the price differential. It must be recognised that price disparity between rayon and cotton at present-day prices is not so wide if they are considered in truly comparable form and for closely competing uses.

In the industrial field cotton seems to be favourably placed with respect to price and utility, except when it competes with the coarser fibres of lower price and almost equal adaptability for established and definite uses. The prospects are that jute, hemp, sisal, flax, etc., will not be able to offer much greater competition than they now do unless cotton moves up quite out of range in price. Rayon and the synthetic fibres are new and not completely developed, and they will unquestionably be brought to a lower price base and a greater utility than they now possess. For household and personal uses it is quite likely that the synthetic fibres will offer increasingly greater competition. Rayon manufacturers are also making a serious effort to accommodate their product to industrial uses and have had some success, notably in the electrical field. It is reported that experiments with rayon with the automobile tyre are making progress.<sup>1</sup>

Because textile fibres all compete with one another, it follows that to impose extensive labour reforms upon the manufacturing of a particular fibre, and on that fibre alone, may burden its competitive position *vis-a-vis* other fibres. *The national and international competition of fibres thus links together the different textile trades into one textile industry.*

A second important reason for treating the textile industry as a unified entity is that the manufacturing operations performed upon the different fibres are, giving due weight to the technological differences which exist, substantially similar. To repeat, the manufacturing of every textile product invariably begins with the preliminary preparation, for spinning, of some animal, vegetable, or mineral fibre. (To this general rule, of course, the chemical production of rayon yarn forms an important exception.) The fibre thus prepared, textile manufacturing proceeds by spinning it into a yarn and then by weaving or knitting the yarn into a fabric. Textile manufacturing comes to a provisional end with the

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<sup>1</sup> *Cabinet Committee Report*, pp. 96-99

finishing of the woven fabric or knitted article, a process which ordinarily calls for chemical operations such as bleaching and dyeing, as well as for physical operations, such as packing and pressing<sup>1</sup>

As a result of the essential similarity of the manufacturing processes applied to the several fibres, the plant and equipment in the different branches of the textile industry are largely interchangeable. This fact was recognised in the United States in the Textile Codes formulated under the National Industrial Recovery Act, and is shown in the United Kingdom by the Report on the Import Duties Act Inquiry (1933), as well as for Germany by the statistics of production of the various weaving branches. The definitions of cotton, silk, wool, and rayon manufacturing under the N R A Codes, as well as the figures showing the significant proportions of their output made of fibres other than their principal raw material by cotton, silk, wool, and rayon establishments in Germany and the United Kingdom, prove that in these countries as elsewhere the concept of a "cotton", a "wool", or a "rayon" mill is a very flexible one indeed<sup>2</sup>. On the one hand, it is nothing unusual to find cotton mills spinning appreciable amounts of wool and silk and weaving wool, silk, or rayon, woollen mills spinning cotton and silk and weaving cotton, silk, or rayon, linen mills producing yarns or fabrics of one or another of the other fibres. On the other hand, much of the output of all textile plants consists of mixtures of different fabrics, such as wool/silk mixtures, cotton/rayon mixtures, cotton/wool mixtures, etc. In fact, the greater part of so called rayon tissues are mixtures of rayon with silk, wool or cotton. These (what might be called) *margins of indifference* in the functioning of plant and equipment are large enough to constitute another major reason for attributing unity to the separate parts of the textile industry.

A third major reason for attributing such unity resides in the fact that, by and large, labour requirements are fairly uniform

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<sup>1</sup> To define precisely the "incoming" and "outgoing" frontiers of textile manufacturing is an intricate problem which this Report does not attempt to solve. Should the washing and scouring of wool, the retting of flax, jute

throughout the range of textile manufacturing. What textile manufacturing processes primarily require of the labour force are deftness, speed, attention rather than (with many important exceptions, of course) the exercise of muscular strength or the possession of high-grade craftsmanship.<sup>1</sup> To quote an earlier Report of the International Labour Office

The textile industry is equipped with very highly perfected machinery. In practically all its processes machines have more or less completely replaced human labour although, of course, mechanisation has not everywhere reached the same level of development. In the most modern mills for the manufacture of various kinds of textiles several operations are now performed by the same machine, with a consequent speeding up of production. In the case of weaving, the extent of mechanisation varies according to the kind of goods produced. Some looms are automatically stopped by the breaking of a warp or weft thread, and the most modern type of loom isolates a broken warp thread by leaving a gap in the weft. Lastly, looms with automatically-changing shuttles and looms without quills have also been introduced.

For several reasons the quantity of labour employed in the textile industry is still comparatively high. In the first place, the machines are delicate and complex, they work at a high speed and require constant watching. Secondly, the thread is easily broken and irregularities in the working of the machines are of frequent occurrence. These irregularities (breaking of the thread in spinning frames, warping frames and weaving looms) can only be repaired by hand. Lastly, the processes of cleaning, refining, bleaching, dyeing and finishing involve a number of operations which cannot always be performed mechanically.<sup>2</sup>

cally specialise in the performance of some particular productive operation, many textile undertakings are either partially or fully "integrated" (spinning with weaving, or throwing with weaving, both with or without dyeing and finishing) To the degree that partial or complete integration prevails in different countries and regions, it would be an artificial procedure to single out spinning or throwing from weaving or knitting, carding or combing from printing or dyeing, etc., in attempts to introduce general labour reforms. Second, although the problems of the textile industry vary to some extent from country to country, these problems are by no means matters of domestic economy only. On the contrary, textiles are one of the staple commodities of world trade, perhaps the world trade commodity *par excellence*. As will be brought out subsequently, the textile industries in many countries are primarily or very largely geared to export markets (for example, the United Kingdom, Japan, France, Switzerland), while in other countries (such as the United States, India and the U S S R), where domestic markets count far more than foreign outlets, the export trade is by no means negligible. Besides, many of the most pressing problems of the textile industry are rooted primarily in the establishment of "protected" home or colonial markets. In short, international competition among the various textile-manufacturing countries is itself a principal factor in transforming what might otherwise be a diversity of unrelated industries into a unity of interrelated parts.

#### IV — IMPORTANCE OF THE INDUSTRY

As defined in the broad sense of the preceding sections, the textile industry is one of the most important of the world's industries. This is true from the point of view of the number of workers engaged in the industry, the value of its output and the volume of foreign trade.

As will be shown in Chapter IX, the total number of persons gainfully occupied in recent years in the textile industry may be estimated at 14 millions at least, or between 3 and 4 per cent of the world total of persons in gainful occupations. This figure, however, includes home-workers and small family concerns which are of considerable importance in certain countries, but it may be estimated that in 1930-1931, a period of relatively good employment, the number of persons actually employed in textile establishments was about 10 millions. Of this total four countries—the

United States, the United Kingdom, Germany and Japan—had slightly over one million employees each, France and the U S S R about 900,000 each, and India and Italy somewhat over 700,000 each, thus, more than three-quarters of all textile workers were concentrated in these eight countries

The proportion of textile workers to all workers in industry (in the narrow sense of the term, i.e. manufactures, mines and transport) is, of course, much higher than the proportion of 3 to 4 per cent indicated above for all the gainfully occupied, and varies considerably from country to country. At the lower limit is such a country as the United States (with about 6 per cent), where the industrial structure is very diversified, then come Germany, the U S S R, France and the United Kingdom, where textile industries play a larger rôle, with percentages of about 8, 8, 11 and 13 respectively. At the upper limit are India, China and Japan, where the structure of industrial production pivots largely on textiles, in the latter country almost 50 per cent of the industrial workers are employed in textile undertakings.

As regards the value of the output of the textile industries, it is only possible, in the absence of reliable estimates for many countries, to give indications for a few of the principal countries. In the United States textile mill products in 1933 accounted for about 9 per cent of the net value of manufactures, in the U S S R for about 13 per cent in 1933, in the United Kingdom in 1930 about 14 per cent of all factory production, and in Japan in 1933 about 26 per cent of all factory output.

Another indication of the importance of the textile industry is furnished by the percentage which the output of textile raw materials<sup>1</sup> constituted of the quantum of world production of primary commodities from 1925 to 1934. During the period 1925-1929, this percentage averaged 5.9, from 1930 to 1934 it was 5.9, 6.2, 6.0, 6.3 and 6.1 respectively.<sup>2</sup>

Finally, a substantial part of all world trade consists of textile commodities, as shown below.<sup>3</sup>

EXPORTS OF TEXTILES AS PERCENTAGE OF WORLD EXPORTS  
(value)

Commodity	1929	1932	1935
All textile goods	20.7	18.3	17.6
Raw materials	9.8	8.1	8.7
Semi-manufactures	2.3	2.4	2.4
Finished manufactures	8.6	7.7	6.6
Cloth	7.9	7.1	6.1
Knitted goods	0.7	0.6	0.5

In many individual countries, however, the ratio of textiles to all exports rises far above these world averages. A few representative percentages for 1935 are as follows<sup>1</sup>

TEXTILE EXPORTS AS PERCENTAGES OF TOTAL EXPORTS, 1935  
(by value, selected countries)

Country	Raw materials	Semi-manufactures	Finished manufactures	Total
Japan	15.8	4.5	35.7	56.0
Australia (1934/35)	33.8	5.0	—	38.8
India	22.3	0.2	12.1	34.6
Italy (1934)	3.4	12.1	15.2	30.6
China	13.8	—	15.1	28.9
United Kingdom	1.9	6.2	19.0	27.1
Switzerland	1.7	4.7	15.3	21.7
United States	17.4	—	2.9	20.3

Almost every country in the world, moreover, expends a significant proportion of its total payments for imports on imported textile materials or products, as shown by a few percentages for 1935<sup>2</sup>

TEXTILE IMPORTS AS PERCENTAGES OF TOTAL IMPORTS, 1935  
(by value, selected countries)

Country	Raw materials	Semi-manufactures	Finished manufactures	Total
United Kingdom	11.3	—	1.9	13.2
United States	7.2	—	6.4	13.6
Chile	—	4.0	13.5	17.5
Germany	13.7	2.1	3.2	19.0
Italy (1934)	16.7	1.6	1.4	19.7
Argentina	—	1.5	23.2	24.7
Estonia	14.5	—	10.8	25.3
India	5.5	5.1	17.4	28.0
Netherlands East Indies (1934)	—	2.7	28.2	30.9
Rumania (1934)	1.9	23.9	8.9	34.7
Turkey (1933)	—	7.8	27.8	35.6
Japan	40.4	0.1	0.3	40.5

All criteria thus lead to the same conclusion, textile manufacturing and trade constitute a fundamental element in the national economy of a great number of countries. In the three chapters which follow, this important industry will be described in detail in terms of the distribution of its raw materials, its manufacturing capacity and output, and its export and import markets.



## CHAPTER III

### SOURCES OF RAW MATERIALS

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Before discussing the manufacturing and trade structure of the world textile industry, the regional distribution of its raw materials must first be considered. This distribution varies considerably as among the different fibres. It will be most convenient, therefore, to consider each of the separate fibres in turn. In a subsequent chapter the bearing of the distribution of textile raw materials upon international competition will be examined. The present discussion is limited to a description of how natural resources of cotton, wool, silk, flax, jute and wood-pulp<sup>1</sup> are shared among the countries of the world.

#### I — RAW COTTON

Cotton is grown in many countries. As among the major types of raw cotton—American, Egyptian, Indian and Brazilian—considerable differences in quality exist. In general, Egypt grows predominantly the finest long fibres, with a staple length of  $1\frac{1}{8}$  inches or longer. The United States and Brazil grow raw cotton chiefly of medium grade with a staple length ranging from  $\frac{7}{8}$  inch to  $1\frac{3}{32}$  inches. Indian cotton is weighted heavily in the coarser grades with a staple length shorter than  $\frac{7}{8}$  inch.

In Southern Brazil, only American upland varieties are grown, and nearly the whole of the Russian crop falls under this category. Peruvian and Sudanese crops, three-quarters of which are of staple length of more than  $1\frac{1}{8}$  inches, bridge the gulf between the long staple Egyptian and medium staple American varieties. At the top of the scale is the Sea Island cotton grown in the British West Indies <sup>1</sup>

Thus, in considering the international distribution of raw cotton, important reservations bearing on quality must be kept in mind. The cotton-growing countries of the world, during the season 1934-1935, produced a total of approximately 51.6 million quintals of "ginned" cotton <sup>2</sup>. Of this total, the United States was responsible for approximately 41 per cent. The next most important producer, British India, accounted for about 17 per cent, followed by China, the U.S.S.R., Egypt and Brazil as shown in table 1.

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<sup>1</sup> UNITED KINGDOM, IMPERIAL ECONOMIC COMMITTEE, *Industrial Fibres*, London, 1936, pp. 16-17. The percentages which the different staple lengths constituted of the total raw cotton output of 1934-1935 in the four major cotton-producing countries were as follows:

Country and Staple Length	Percentage
<i>United States</i>	
Shorter than $\frac{7}{8}$ inch	8
$\frac{7}{8}$ - $1\frac{3}{32}$ inches	83
$1\frac{1}{8}$ inches and longer	9
	<hr/> 100
<i>India</i>	
Shorter than $\frac{7}{8}$ inch	75
$\frac{7}{8}$ inch and longer	25
	<hr/> 100
<i>Brazil</i>	
Shorter than $\frac{7}{8}$ inch	2
$\frac{7}{8}$ - $1\frac{3}{32}$ inches	79
$1\frac{1}{8}$ inches and longer	19
	<hr/> 100
<i>Egypt (percentage of sown acreage)</i>	
Shorter than $1\frac{1}{4}$ inches (mostly over $1\frac{1}{8}$ inches)	51
$1\frac{1}{2}$ inches and longer	49
	<hr/> 100

<sup>2</sup> Ginned cotton is raw cotton which has undergone preliminary manufacturing (removal of seeds). In the present Report, cotton ginning is not treated as part of textile manufacturing.

TABLE 1 — ESTIMATED PRODUCTION OF GINNED COTTON,  
1934-1935

Country	Production (in thousand quintals)	Percentage
United States	20,893	40.5
India	8,814	17.1
China	6,772	13.1
U S S R	4,078	7.9
Egypt	3,504	6.8
Brazil	3,050	5.9
Peru	741	1.4
Argentina	640	1.2
Anglo-Egyptian Sudan	493	1.0
Other countries (a)	2,615	5.1
Total	51,600 (b)	100.0

(a) Less than 1 per cent each

(b) Total refers only to recorded output of 1934-1935

SOURCE: *Statistical Year-Book of the League of Nations*, 1935/36 p. 110

Thus, cotton is cultivated in at least 50 countries in both hemispheres. An overwhelming proportion, however, over 90 per cent in 1934-1935, was grown in the United States, India, China, the U S S R, Egypt and Brazil.

## II — RAW WOOL

In considering statistics relating to the world production of raw wool, the following reservations must be kept in mind:

The statistics relating to wool production being rather incomplete, the figures given in the table are in many cases only estimates based on the sheep population. They refer to sheep's wool only; mohair, camel's hair and similar fibres are excluded. They comprise shorn and skin wool, and, as far as possible, wool recovered from sheepskins. For reasons of comparability, the data have been computed on a "greasy" basis.<sup>1</sup>

World output of raw wool in 1934, as shown in table 2 below, was thus estimated at 1,656.3 thousand metric tons. Although this total was produced in some sixty different countries, it was highly concentrated in five countries: Australia, the United States, Argentina, New Zealand, and the Union of South Africa, which together produced approximately 64 per cent. of the world total, while Australia alone was responsible for more than 25 per cent.

<sup>1</sup> *Statistical Year-Book of the League of Nations*, 1935/36, p. 122

TABLE 2 — ESTIMATED PRODUCTION OF RAW WOOL, 1934  
(greasy basis)

Country	Production (in thousand metric tons)	Percent 1934
Australia (a)	462.7	27.9
United States	204.0	12.3
Argentina (a)	170.6	10.3
New Zealand (a)	125.1	7.6
Union of South Africa (a)	100.7	6.1
U S S R	64.0	3.9
Uruguay (a)	53.1	3.2
United Kingdom	51.7	3.1
India	45.4	2.7
China (incl Manchuria) (b)	41.0	2.5
Spain	33.1	2.0
Rumania	26.0	1.6
France	24.3	1.5
Iran	22.2	1.3
Algeria	18.1	1.1
Turkey	17.1	1.0
Brazil	16.5	1.0
Italy	16.3	1.0
Other countries (c)	164.4	9.9
Total	1,656.3	100.0

(a) Crop or fiscal year 1934-1935

(b) Exports

(c) Less than 1 per cent each

SOURCE: *Statistical Year-Book of the League of Nations* 1935/36, pp 123-123

Several facts are interesting in connexion with table 2. First, the very wide range of raw wool culture, in all regions of the world—from Iceland to Ecuador, from New Zealand to Canada, from Manchuria to the Falkland Islands—sheep are raised in appreciable quantities for the wool clip. Second, the world output is somewhat concentrated in the southern hemisphere. Thus, in 1934 Oceania accounted for 35.5 per cent, South America for 16.0 per cent, and Africa for 8.8 per cent, altogether 60.3 per cent of the world total. Third, the world output is also somewhat concentrated in the British Empire. Australia, New Zealand, the Union of South Africa, the United Kingdom, India, Canada, the Irish Free State, Basutoland, the Falkland Islands, Cyprus, and Newfoundland altogether supplied nearly half of the world total. Fourth, outside the British Empire and outside the southern hemisphere the most important producers are the United States and the Soviet Union. Fifth, all of the major wool manufacturing countries (except Japan) are also producers of raw wool in substantial quantity.

In considering quantities of raw wool produced in different countries, allowance should be made for quality. The quality of raw wool depends on breed of sheep.

Broadly speaking, there are three main sheep types (1) the merino, (2) the crossbred, and (3) the native. The first two are heavy woolled types. The merino sheep has a limited amount of flesh but bears an abundance of fine wool and is frequently of smaller size than the crossbred sheep. Sheep of the crossbred type produce a high quality of mutton for which they are largely bred, and also a valuable fleece covering a wide range of qualities but in the main much coarser than the merino, although in exceptional cases not widely differing in fineness from the coarsest qualities of the merino. The term "crossbred" is here used to denote sheep yielding wool of the quality known as "crossbred" and does not refer to sheep which are the result of crossbreeding.

The third type comprises various kinds of sheep producing either a short, coarse wool or a hairy fibre of little or no commercial value. The first class are known as low-woolled and the second as non-woolled<sup>1</sup>.

In Australia merino sheep predominate, although the proportion of merino wool output during the period 1911-1931 varied from 66 to 84 per cent. In New Zealand crossbred sheep predominate, the merino percentage of total output having fallen from 90 per cent in 1882 to 2 per cent in 1932. Merino sheep are the most common type of woolled sheep in the Union of South Africa, those of the United Kingdom are almost entirely crossbred, and crossbred sheep form two-thirds of the total in Canada. The sheep of North-west India are mostly native, while those of Central and Southern India are mostly hair-sheep.<sup>2</sup>

In so far as countries outside of the British Empire are concerned, the sheep of Argentina are largely crossbred, although a considerable proportion is intermediate between crossbred and merino. The sheep of the United States are divided about equally between merino and crossbred types. The great bulk of the sheep in the Soviet Union are coarse-woolled, merino forming a very small proportion of the flocks. About three-fourths of the sheep of Spain are coarse-woolled, the remainder being merinos.<sup>3</sup> To sum up

With the exception of the United States, the Soviet Union and Spain, no important manufacturing country produces wool in anything like sufficient quantity to satisfy the needs of its local industry. Even in the case of the two former countries home-grown supplies have to be supplemented by imports, although not to the same extent as in countries such as the United Kingdom, Germany, France, Japan and Belgium. This position applies, of course, particularly to wools for industrial use. Countries such as India, China and the Balkan States are large reservoirs of coarse or "carpet" wools, the uses of which are largely limited to

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<sup>1</sup> UNITED KINGDOM, EMPIRE MARKETING BOARD. *Wool Survey*, London, 1932, p. 59.

<sup>2</sup> *Ibid.*, pp. 59-62.

<sup>3</sup> *Ibid.*, pp. 62-65.

the carpet and felt trades. In these countries, domestic handicraft industries and the local use of woolled skins renders adequate estimates of consumption of wool, and even of production, impossible.

A feature of general interest has been the recent development of wool textile industries in the primary producing countries, which are now consuming an increasing quantity of their own wool. Australia and Argentina in particular have built up modern industries, and the Union of South Africa is now the only producing country of any importance which does not manufacture wool goods in any quantity.<sup>1</sup>

### III — SILK COCOONS

Production of silk cocoons<sup>2</sup> in 1934 may be estimated as amounting to at least 938.8 million lbs. Japan alone was responsible for 76.7 per cent, and together with Korea supplied 82.1 per cent of the world total. Other substantial producers were China, Italy, the U.S.S.R. and India, as is shown in table 3 below.

TABLE 3 — ESTIMATED PRODUCTION OF SILK COCOONS, 1934

Country	Production (in million lbs.)	Percentage
Japanese Empire	771.1	82.1
Japan Proper	720.4	76.7
Korea	50.7	5.4
China	(22.3) (a)	(2.4)
Italy	63.6	6.8
U.S.S.R.	33.5	3.6
India (1931-1932)	(28.2) (b)	(3.0)
Greece	5.7	0.6
Turkey	4.3	0.5
Bulgaria	3.1	0.3
Syria and Lebanon	2.6	0.3
France	2.1	0.2
Hungary	0.9	0.1
Spain	0.8	} less than 0.1
Cyprus	0.3	
Yugoslavia	0.3	
Total (c)	938.8 (c)	100.0

(a) No production figures available. Total here given is sum of 1934 exports of silk cocoons (0.5), raw silk (7.3) and silk waste (14.5).

Japan's predominance appears clearly. It would be materially diminished, however, if full data were available for India and especially for China.

#### IV — WOOD-PULP

The discussion which follows is confined to wood-pulp as the raw material of rayon. What is said applies, however, with equal force to wood-pulp as the raw material for so called "staple fibre" and other synthetic textile products.

The principal raw materials used for rayon manufacture are cotton linters and wood pulp. The cellulose obtained from these materials is treated chemically and dissolved in a solvent, after which it is extruded through jets into a coagulating bath or into warm air. Numbers of the filaments thus obtained are twisted together to make yarn. There are four different processes for the manufacture of rayon, their products being nitrocellulose (Chardonnet), cuprammonium, viscose, and cellulose acetate rayon.

Viscose is easily the most important product in all countries, and accounted for 88 per cent of the aggregate world production in 1935. Its supremacy is chiefly due to the relative cheapness of production. The proportion of acetate in the total has increased slightly since 1929, but is still quite small as compared with viscose<sup>1</sup>.

So far as cotton linters are used as the raw material of rayon yarn, the international distribution of "raw rayon" coincides with that of raw cotton. So far as wood-pulp constitutes the raw material, however, the international distribution of "raw rayon" corresponds with that of capacity to produce wood pulp, this, in turn, depends largely on the world localisation of forest resources. The data are presented in table 4.

Two features are noteworthy. First, there is a considerable concentration of wood-pulp output in North America (41.8 per cent of the world total), and Scandinavia plus the U.S.S.R. (33 per cent). This concentration is clearly related to the international distribution of forest resources readily exploitable. Second, except for the United States and Germany, no major rayon-manufacturing country takes significant rank as a producer of wood-pulp. The low percentages of the world total of wood-pulp for such countries as Italy, Japan, France, the United Kingdom and Switzerland are the result of their deficiency in timber.

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<sup>1</sup> *Industrial Fibres*, p. 94.

TABLE 4 — ESTIMATED PRODUCTION OF WOOD-PULP, 1934

Country	Production (in thousand metric tons, dry weight)	Percentage
United States	3,910	21.8
Canada	3,298	18.4
Sweden	2,870	16.0
Germany	1,934	10.8
Finland	1,568	8.8
Norway	982	5.5
U S S R (1933)	483	2.7
Japan	365	2.0
Czechoslovakia	325	1.8
Austria	319	1.7
Saghalien	319	1.7
France	280	1.6
Newfoundland	278	1.6
United Kingdom	233 (a)	1.3
Poland	123	0.7
Netherlands	101	0.6
Estonia	86	0.5
Italy (1932)	82	0.5
Switzerland	77	0.4
Lithuania	50	0.3
Rumania	46	0.3
Korea and Kwantung	32	0.2
Mexico	30	0.2
Latvia	22	0.1
Belgium, Spain, Portugal	85	0.5
Total	17,898	100.0

(a) Mainly esparto pulp

Source: *Statistical Year-Book of the League of Nations, 1935/36*, pp 126-127

## V — FLAX

Flax is the raw material of linen textile manufacturing

The "Linum" plant is generally cultivated either for the fibre or for the seed. In some countries, however, the crop, grown primarily for linseed, yields an appreciable by-product of fibre, but at a considerably increased labour cost. Thus in the main flax-growing regions of the Soviet Union the fibre obtainable from straw of linseed varieties was estimated



In 1935 world production of flax amounted to 751 thousand tons. Over 72 per cent of this total was produced in one country, the U S S R, while most of the remainder was raised in the Baltic countries (Poland, Lithuania, Latvia, Estonia) and Germany, which together accounted for 14.4 per cent. The detailed figures are given in table 5.

TABLE 5 — ESTIMATED PRODUCTION OF FLAX, 1935

Country	Production (in thousand tons)	Percentage
U S S R	541	72.0
Poland	39	5.2
Lithuania	31 (a)	4.1
Belgium	28	3.7
Latvia	24	3.2
France	14	1.9
Germany	14	1.9
Yugoslavia (1934)	11	1.5
Estonia	10	1.4
United Kingdom	7	0.9
Netherlands	7	0.9
Rumania	7	0.9
Canada	6 (b)	0.8
Czechoslovakia	5	0.7
Japan (1933)	4	0.5
Italy (1934)	2	0.3
Irish Free State	1	0.1
Total	751 (c)	100.0

(a) Including small amount of hemp

(b) Mainly flax tow

(c) Includes Japan 1933, and Yugoslavia and Italy, 1934, so far as possible flax for seed has been excluded

Source: *Industrial Fibres*, p. 64

## VI — RAW JUTE

Jute is here selected for analysis as the most important of the many fibres used almost exclusively for industrial and agricultural purposes <sup>1</sup>

Jute is virtually a monopoly of India and ranks next to cotton and tea as a principal export commodity of that country. The cultivation of jute is concentrated in the Province of Bengal, which accounts for 90 per cent of the total Indian output, the adjoining parts of Assam and Bihar producing the remaining 10 per cent<sup>1</sup>.

In 1934 India alone produced almost 99 per cent of the total world output of raw jute, amounting to 1,540 thousand tons. The details are given in table 6.

TABLE 6 — PRODUCTION OF RAW JUTE, 1934

Country	Production (in thousand tons)	Percentage
India	1,518	98.5
Nepal	10 (a)	0.6
Japanese Empire	10	0.6
Formosa	9	
Japan	1	
China	3 (b)	0.2
Indo-China	— (c)	—
<b>Total</b>	<b>1,541</b>	<b>100.0</b>

(a) Exports to India  
(b) Exports  
(c) Under 500 tons

SOURCE: *Industrial Fibres* p. 73

## VII — TEXTILE RAW MATERIALS IN THE NATIONAL ECONOMY

The principal findings which emerge from the foregoing analysis may be summarised as follows:

First, of the important textile-manufacturing countries, many are deficient in one or more of the raw materials. Thus Japan, the United Kingdom, France, Germany, etc., have no raw cotton whatever, only the United States, the Soviet Union and Spain attain anything like self-sufficiency in raw wool, silk manufacturing the world over has to depend on raw materials produced in the Japanese Empire, linen manufacturing on flax grown in the Soviet Union and the Baltic States, rayon manufacturing on wood-pulp produced mainly in countries with large stands of timber, and jute manufacturing almost entirely on a commodity produced in India.

Second, some of the principal textile-manufacturing countries are more or less self-sufficient in one or more raw materials. This is

true of the United States as regards cotton and to a less extent wool, of India as regards cotton and jute, of the Soviet Union as regards wool, cotton and flax, of Japan as regards silk, of China, Brazil and Mexico as regards cotton, etc

Third, a good part of the world's textile raw materials is produced in countries which are not themselves important manufacturing centres. Thus, the output of wood-pulp for rayon is heavily concentrated in the Scandinavian States, the production of manila hemp for cordage is entirely confined to the Philippine Islands, so far as cotton is concerned, countries such as Egypt, Peru, Argentina and Turkey are all appreciable producers, at least one important raw wool producer, the Union of South Africa, has not yet developed an important wool manufacturing industry.

Finally, in many countries textile raw materials are grown, primarily for the export trade, and such exports are often of great importance to the national economy. If the "export quota" be defined as the ratio of exports to domestic production,<sup>1</sup> then the textile export quotas of particular countries in recent years were as shown in table 7.

TABLE 7 — RATIO OF EXPORTS TO DOMESTIC PRODUCTION,  
TEXTILE RAW MATERIALS

Selected countries, 1934 or 1935 (volume)

Country	Cotton	Wool (a)	Silk (b)	Flax
Argentina	64	82	—	—
Australia	—	92	—	—
Brazil	41	30	—	—
Egypt	108	—	—	—
United States	64	—	—	—
India	66	48	—	—
Italy	—	—	70	—
Japan	—	—	67	—
Lithuania	—	—	—	33
New Zealand	—	74	—	—
Peru	96	76	—	—
U S S R	1	—	—	11
Union of South Africa	—	106	—	—

Jute export quota India, 70

Export quotas for hemp fibres Netherlands East Indies 86 (sisal), Italy, 95 (true hemp), Mexico 98 (henequen), Philippine Islands, 98 (manilla hemp)

(a) Export ratios somewhat underestimated production on greasy basis, exports actual weight

Table 8 shows exports of textile raw materials as percentages of the value of all exports for particular countries

TABLE 8 — EXPORTS OF TEXTILE RAW MATERIALS AS PERCENTAGE OF ALL EXPORTS, SELECTED COUNTRIES, 1934 OR 1935

Country	(Value)			
	Cotton	Wool	Silk	Flax
Argentina	—	7	—	—
Australia	—	39	—	—
Brazil	15	1	—	—
Egypt	76	—	—	—
United States	17	—	—	—
India	20	1	—	—
Italy	—	—	8	—
Japan	—	—	16	—
Lithuania	—	—	—	5
New Zealand	—	15	—	—
Peru	26	3	—	—
U S S R	—	—	—	3
Union of South Africa	—	10	—	—

Jute export percentage India, 9

Export percentages for hemp fibres Netherlands East Indies, 2, Mexico, 3, Italy 3; Philippine Islands, 13

Sources *Industrial Fibres, 1936*, LEAGUE OF NATIONS *International Trade Statistics, 1935*

The economic fortunes of many countries are thus seen to be closely bound to world trade in textile raw materials. Even countries which are not themselves important manufacturers of textile products are thus concerned in economic and social measures affecting the textile industry.

## CHAPTER IV

### WORLD TEXTILE MANUFACTURING

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The present chapter deals with available statistics relating to the distribution of textile manufacturing among the different countries of the world. The influences and forces working to reshape the structure of world textile manufacturing, that is, the dynamic aspects of the problem, are considered in Chapter VI.

#### I — HANDICRAFT PRODUCTION

Textile manufacturing for the purposes of this chapter is limited to factory production. A substantial part, however, of the world's total output of textiles is still to-day produced by hand spinners and weavers. In India, China, Japan, the Near East, and other parts of the world, the handicraft artisan of textile fabrics still flourishes. He represents, in a world transformed by the Industrial Revolution, the survival of one of the most ancient of human crafts.

Statistical data relating to handicraft production of textile manufactures are so fragmentary that it would be useless to try to include the home workshop with the power factory in a picture of the world structure of textile manufacturing. Further, hand-loom weaving, and still more so hand spinning, bear economically on home rather than world markets.<sup>1</sup> Besides, the difficulties of enforcing labour reforms upon family artisans working in home workshops necessarily limit the scope of such reforms to the factory. Nevertheless, in view of the substantial contribution of handicraft to total textile output, a brief survey of handicraft production in three Asiatic countries may be useful.

*India* — It has been estimated that in India, in the making of cotton textiles, there are "intermittently at work 50 million

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<sup>1</sup> This does not hold true for certain hand-made products, such as linen and cotton embroidery and lace, which do enter into world trade to an appreciable extent.

spinning wheels (charkas) and almost 2 million hand looms", and that these looms produce about 40 per cent of the total cloth produced by India and furnish about 25 per cent of that country's total consumption of cloth<sup>1</sup> The importance of hand spinning and weaving to the economic life of India becomes still clearer from the fact that of nearly 4 million persons gainfully occupied in the textile industry in 1931, only 20 per cent at most were employed in factories<sup>2</sup> .

An informed observer of the Indian cotton textile industry believes that the hand loom is by no means destined to be completely overcome by the competition of the power loom. In his opinion

The hand loom weaving industry has certain advantages over the power-loom factories, viz smallness of capital for the outlay, cheapness of labour, its suitability to village life, proximity of market, the facility of working in one's cottage and for one's self, the facility of taking up and leaving off the work at any time, the help from the family (not in the limited sense of the English usage), i.e. from the householders, the absence of manifold disadvantages of working in mills under factory conditions, being exposed to risks, accidents, vices, etc., and other evils of industrialism, the absence of the disintegrating influence on family life, the patronage of noblemen for fancy products in which the individual artist's skill can be appreciated, etc., etc.<sup>3</sup>

Another student of Indian economics contends that hand-loom and power-loom weaving are not entirely competitive

The hand loom does not compete with the mill, it supplements it in the following ways (1) It produces special kinds of goods which cannot be woven in the mills, (2) it utilises yarn which cannot at present be used on the power loom, (3) it will consume the surplus stock of Indian spinning mills which need not be sent out of the country, (4) being mainly a village industry, it supplies the local demand and at the same time gives employment to capitalists, weavers and other workmen, (5) lastly, it will supply the long-felt want of an honest field for work and livelihood for educated Indians<sup>4</sup>

*China* — Handicraft production of cotton textiles in China is discussed by a student of the subject as follows

Among the leading Oriental countries where cotton hand looms are still employed, China, the most densely populated and probably no

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<sup>1</sup> A S PEARSE *The Cotton Industry of India*, Manchester, 1930, pp 25, 27, M P GANDHI *The Indian Cotton Textile Industry*, Calcutta, 1930, p 86

less backward in industrial development than India, is the only nation where hand-loom weaving still predominates over power-loom weaving. In 1925 there were in Japan 238,999 cotton power looms as against 126,360 cotton hand looms, while in India in 1926 the cotton cloth production amounted to 1,950 million yards from power looms as against 1,160 million yards from hand looms. In China the proportion of power weaving to hand weaving, in terms of yarn consumption, is only 1 to 4<sup>1</sup>

The author goes on to quote official and semi-official estimates which would indicate that in 1930, of a total Chinese cotton yarn consumption of 961 million lbs., power looms consumed no more than 22 per cent, and hand looms over 78 per cent. On the other hand, although cotton yarn consumption by hand looms increased 39 per cent from 1913 to 1930, consumption by power looms increased almost thirteen times within the same interval. The extreme discrepancies in these two rates of increase do not, however, deter the author from concluding that despite the amazing rate of progress in power-loom weaving "hand-loom weaving will undoubtedly persist so long as the agricultural economy, coupled with an over-growth of population and a low standard of living, remains primarily unaffected by modern industrial changes"<sup>2</sup>

Hand-loom weaving of cotton in China is carried on both in country districts and urban centres. In some of the Chinese cities—Wusih, for example—hand loom weaving is a workshop trade on a family basis, in others, notably Tientsin, the small hand-loom workshops are under master craftsmen and merchant employers. In the country districts,

cotton hand-loom weaving is a by-employment to agriculture in most cases. It is a dovetailing occupation, in which almost every member in the farmer's family is engaged in one way or the other during the off seasons. Wherever the cloth produced is barely sufficient for home consumption, the industry is *par excellence* in the household stage. But oftentimes the farmers work for market production in addition to meeting their own needs, in which case the type of organisation is no different from that existing elsewhere during the pre industrial days<sup>3</sup>

*Japan* — Even in Japan, hand weaving of cotton cloth for the home market—a subsidiary peasant occupation—has not been entirely displaced by the power loom. In a recent study of the textile industry it was noted that

the number of hand looms has declined from 165,117 in 1922 to 99,684 in 1927 and to about 86,000 to-day (1931). Even so the number of hand

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<sup>1</sup> H. D. Fong, *Cotton Industry and Trade in China*, Nankai Institute of Economics, Tientsin, 1932, Vol. I, p. 230.

<sup>2</sup> *Ibid.*, p. 230.

<sup>3</sup> *Ibid.*, pp. 232-233.

looms still in use is not negligible in so far as home consumption of cotton cloth is concerned (they are all narrow-width looms for making kimono cloth) There is still room for the expansion of the machine industry in the home market <sup>1</sup>

As regards finishing, at least of cotton flannelettes, an export cloth of considerable importance

the dyeing is done for the most part in very small establishments with little assistance from machinery and by rather primitive methods For the most part the bleaching is done at a charge for a merchant or a manufacturer, and is done mainly by hand Although bleaching, dyeing and printing are still done in Japan for the most part in very small establishments, and although the cheaper goods may be poorly finished, the exquisite printed silks worn by Japanese ladies show that the Japanese are capable of the finest work <sup>2</sup>

Handicraft production is especially important in the silk-reeling industry It is true that as compared with the years preceding the Russo-Japanese War the present ratio of "machine-reeled" to all raw silk has risen from 70 to over 90 per cent, while that of "hand-reeled" silk has fallen from almost 30 to under 3 per cent Nevertheless the silk-reeling industry of Japan



Despite this process of dispersion, textile manufacturing still shows characteristic patterns of international localisation for each fibre and for each process <sup>1</sup> In the following pages, the geographic distribution of the industry will be considered separately for cotton, wool, silk, rayon, linen, and jute

#### A — *Cotton Textiles*

None of the several methods by which the world structure of cotton manufacturing may be described is in itself entirely adequate To enumerate spindles and looms in place is to distort their true productive significance, which depends on degree of utilisation and on differences in mechanical efficiency Measurement in terms of *volume of output* not only fails to reflect existing capacities, but also suffers from the defect that totals of volume disguise differences in quality or grade and thus also significant differences in unit and total value Measurement in terms of *value of output* has its drawbacks in that the purchasing power of national currencies, as determined by price levels and foreign exchange rates, may fluctuate over a wide range within a brief period To measure the industry either by volume or value of exports is to eliminate important distinctions between countries which produce largely for home markets and those which produce primarily for world markets

Perhaps one of the least unsatisfactory measurements of localisation is furnished by data relating to annual mill consumption of raw cotton over a period during which most manufacturing countries experienced the same cyclical forces Even this standard is far from perfect Mill consumption of raw cotton as a criterion of the international localisation of manufacturing capacity is a variable determined by at least three factors (1) the average count of yarn manufactured in a particular country, (2) the proportions of the several grades of raw cotton consumed, (3) the relations within a given country between spinning and weaving, and between weaving and knitting Unless proper adjustments can be made for each of these factors, variations in annual

amounts of mill-consumed raw cotton may be misinterpreted, whether two countries or two periods be compared

The purpose here is to describe the world structure of cotton manufacturing by various criteria, in the hope that distortions attributable to any one criterion taken singly will thus be offset

### *Mill Consumption of Raw Cotton*

The International Federation of Master Cotton Spinners' and Manufacturers' Associations supplies semi-annual data on mill consumption of raw cotton in all manufacturing countries <sup>1</sup> These data have been analysed here for the years 1933-1934 to 1935-1936 with a view to determining the world structure of cotton manufacturing as it exists to-day The analysis reveals that the cotton manufacturing countries fall into five major groupings (1) the older European cotton textile area, whose mills consume from 30 to 33 per cent of the world's raw cotton, (2) the Asiatic cotton textile area, whose mills also consume from 30 to 33 per cent of the total, (3) the North American textile area, responsible for more than 25 per cent, (4) the Latin-American textile area, which accounts for approximately 2.5 per cent, and (5) other textile areas, processing about 10 per cent The most important country as a mill consumer of raw cotton is the United States (about 25 per cent), followed by Japan (13-14 per cent), the United Kingdom (10-11 per cent), India (9-10 per cent), China (7-10 per cent), Germany and the U.S.S.R. (about 6 per cent each) The United States mills alone consume approximately as much raw cotton each year as do all the mills of Germany, France, Italy and the United Kingdom together, and somewhat less than all the mills of China, India and Japan combined Table 1 presents the relevant data

To show the present mill consumption of raw cotton by individual countries in more detail, the data which relate to the operating year ended 31 July 1936 have been converted here from running into standard bales During this year, mills were active in some fifty countries and processed close to 25.2 million (standard) bales of raw cotton Of this total nearly two-thirds was consumed in five countries--the United States, Japan, the United Kingdom,

India and China—and nearly half in the first three countries alone. In short, although cotton manufacturing is widely diffused, the overwhelming bulk of its output (about 94 per cent) is handled by mills operating in fifteen countries, each of which consumed in 1935-1936, 1 per cent or more of the world total of raw cotton. Table 2 presents the detailed figures.

TABLE 1 — MILL CONSUMPTION OF RAW COTTON, 1933-1936 (a)  
(percentage of world total, by volume)

Country or group	1933-1934	1934-1935	1935-1936
<i>"Old" European cotton textile area</i>			
Germany	6.5	6.5	6.0
France	4.8	4.1	4.6
Italy	3.7	3.3	3.1
United Kingdom	10.5	10.3	10.6
Major countries	25.5	24.2	24.3
Other (b)	7.0	7.3	7.6
Above countries	32.5	31.5	31.9
<i>Asiatic area</i>			
China	10.4	8.1	6.9
India	8.7	10.2	9.7
Japan	12.6	14.4	13.0
Above countries	31.7	32.7	29.6
<i>North American area</i>			
Canada	1.0	1.0	1.0
United States	23.2	22.7	25.2
Above countries	24.2	23.7	26.2
<i>Latin-American area</i>			
Brazil	1.8	1.8	1.9
Mexico	0.7	0.6	0.6
Above countries (c)	2.5	2.4	2.5
<i>Other areas</i>			
USSR	5.7	6.2	6.0
Other countries (d)	3.5	3.5	3.8
Above countries	9.2	9.7	9.8
<i>All countries</i>	100.0	100.0	100.0

TABLE 2 — MILL CONSUMPTION OF RAW COTTON, 1935-1936  
(in thousand standard United States bales)

Country		Mill consumption (a)	Percentage	Cumulative percentage
1	United States	6,336	25.2	25.2
2	Japan	3,281	13.0	38.2
3	United Kingdom	2,662	10.6	48.8
4	India	2,440	9.7	58.5
5	China	1,740	6.9	65.4
6	Germany (1934-1935)	1,522	6.0	71.4
7	U S S R	1,517	6.0	77.4
8	France	1,163	4.6	82.0
9	Italy (1934-1935)	780	3.1	85.1
10	Brazil	471	1.9	87.0
11	Spain (b)	406	1.6	88.6
12	Czechoslovakia	379	1.5	90.1
13	Belgium	349	1.4	91.5
14	Poland	302	1.2	92.7
15	Canada	253	1.0	93.7
16	Netherlands	196	0.8	94.5
17	Austria	178	0.7	95.2
18	Mexico	147	0.6	95.8
19	Sweden	127	0.5	96.3
20	Hungary	106	0.4	96.7
	Switzerland	105	0.4	97.1
22	Yugoslavia	79	0.3	97.4
23	Portugal	71	0.3	97.7
24	Finland	57	0.2	97.9
25	Denmark	32	0.1	98.0
26	Norway	13	0.1	98.1
27-50	Other countries (c)	476	1.9	100.0
		25,188	100.0	

(a) Converted from running bales by these weights: bales of American cotton, 10,

TABLE 3 — COTTON-SPINNING SPINDLES IN PLACE, BY TYPES AND COUNTRIES, 31 JULY 1936  
(in percentage of world total)

Country or group	All spindles	Mule	Ring	Egyptian cotton
<i>All countries</i> number (millions)	(151 7)	(44 0)	(107 8)	(26 4)
<i>"Old" European cotton textile area</i>				
Germany	6 7	7 4	6 4	5 5
France	6 5	5 5	7 0	7 9
Italy	3 6	1 3	4 6	2 7
United Kingdom	27 3	69 0	10 2	64 5
Major countries	44 1	83 2	28 2	80 6
Other (a)	8 2	7 9	8 5	6 8
Above countries	52 3	91 1	36 7	87 4
<i>Asiatic area</i>				
China	3 3	—	4 6	—
India	6 4	1 4	8 4	1 9
Japan	7 2	—	10 1	3 3
Above countries	16 9	1 4	23 1	5 2
<i>North American area</i>				
Canada	0 7	0 1	1 0	0 3
United States	18 6	0 9	25 8	3 8
Above countries	19 3	1 0	26 8	4 1
<i>Latin-American area</i>				
Brazil	1 8	—	2 5	0 8
Mexico	0 6	—	0 8	—
Above countries (b)	2 4	—	3 3	0 8
<i>Other areas</i>				
USSR	6 5	5 0	7 1	—
Other countries (c)	2 6	1 5	3 0	2 5
Above countries	9 1	6 5	10 1	2 5
<i>All countries</i>	100 0	100 0	100 0	100 0

(a) Austria, Belgium, Spain, Netherlands, Poland, Switzerland, Czechoslovakia  
(b) Other Latin-American countries included under "other countries" had 0.2 per cent

Federation of Master Cotton Spinners' and Manufacturers' Associations, there were 151·7 million cotton spinning spindles<sup>1</sup> in place, of which 44·0 million (29 per cent) were mule and 107·7 million (71 per cent) ring spindles. All spinning spindles in place—ring and mule—included 26·4 million (17 per cent) spindles engaged on Egyptian cotton.

The number of spindles in place can measure nothing more than "potential" productive capacity, and this roughly at best, it ignores the effects of hours of work and shifts in different countries, as well as the technological factors of suitability for specific yarn counts, extent of mechanisation, and obsolescence. Nevertheless the pattern of distribution shown in table 3 is suggestive. In a general way it indicates that potential productive capacity in cotton manufacturing is concentrated in the same areas and countries whose mills consume the overwhelming bulk of all raw cotton. In some specific ways, however, the distribution of raw cotton consumption diverges from that of spindle capacity. Especially important are the differences in the international localisation of ring and mule spindles, and in the proportions of the total engaged in spinning Egyptian cotton at a given time.

As between mule and ring spindles, the world distribution of "mule" roughly measures potential capacity to produce high grades of yarn by processes in which labour skills count heavily, that of "ring" measures capacity to manufacture low or medium grades of yarn by a highly mechanised technique<sup>2</sup>. In this connection, table 3 shows that the "old" European textile area with some 37 per cent of world ring capacity has some 91 per cent of world mule capacity, while the Far Eastern textile area has no more than 2 per cent mule and no less than 23 per cent of the ring equipment. In so far as individual countries are concerned, the United Kingdom and the United States mark the extreme limits of variation. Thus, the United Kingdom has 27 per cent of all the spindles of the world, only 10 per cent of all "rings" and close to 70 per cent of all "mules". In contrast, the United States has 19 per cent of all the spindles of the world, over 25 per cent of the "ring" total, and under 1 per cent of the "mule" total.

TABLE 4 — COTTON-SPINNING SPINDLES, BY TYPES, 31 JULY 1936  
(by percentage of all types)

Country or group	Ring	Mule	Egyptian (ring or mule)
<i>Over 95 per cent ring</i>			
Brazil	100	0	—
China	100	—	—
Denmark	100	—	—
Japan	100	0	9
Mexico	99	1	1
United States	99	1	4
<i>From 95 to 85 per cent ring</i>			
Canada	94	6	7
India	93	7	5
Sweden	93	7	16
Italy	89	11	13
Hungary	88	12	22
Finland	87	13	9
"Other" countries (a)	86	14	13
Belgium	85	15	5
<i>From 85 to 75 per cent ring</i>			
Norway	83	17	—
Spain	79	21	10
Netherlands	78	22	2
U S S R	77	23	—
France	76	24	21
<i>From 75 to 70 per cent ring</i>			
Yugoslavia	74	26	21
Poland	73	27	20
Austria	70	30	17
Portugal	70	30	15
<i>Below 70 per cent ring</i>			
Germany	67	33	14
Switzerland	67	33	60
Czechoslovakia	58	42	20
United Kingdom	27	73	41
All countries	71	29	17

(a) Almost entirely new industrial countries (e.g. Argentina, Bulgaria, Colombia, Greece, Rumania, Turkey)

SOURCE: *International Cotton Bulletin* Vol. XV, No. 57, Oct. 1936, pp. 150-151

The capacity to produce the finest grades of cotton yarn is thus apparently concentrated in Western Europe almost to the exclusion of other areas. On the other hand, the Asiatic and the North American textile areas combined possess one-third more capacity to manufacture mass-production yarns than all the European countries together. This conclusion is further confirmed when the distribution of "all" spindles (operating on low, medium and

high grade cotton indifferently) is contrasted with that of "Egyptian" spindles operating on the finest grades alone. Close to 90 per cent of the "Egyptian" spindles are concentrated in Europe (65 per cent in the United Kingdom alone) as compared with 52 per cent of "all" spindles. On the other hand, with 20 per cent of "all" spindles, the North American textile area holds only 4 per cent of the "Egyptian" spindles, similarly, with 17 per cent of "all", the Far Eastern textile area has only 5 per cent of "Egyptian".

Limitations of space preclude a detailed discussion of the internal composition of spindle capacity in the various cotton manufacturing countries. Broadly speaking, the range of variation runs all the way from such countries as Brazil, China and Japan, where virtually all equipment is of the highly-mechanised, mass-production (ring) type, to such countries as Switzerland, Czechoslovakia and the United Kingdom, where plant and equipment are heavily biased toward the skilled-labour, quality-production (mule) types. Detailed comparisons can be made by consulting table 4.

To translate "potential" capacity represented by spindles in place into "actual" commercial capacity is too big and complicated a task, considering the statistical and technical data which bear on the problem. All that is attempted here is to suggest a method, entirely for purposes of illustration, by which such a translation may be made. The method is to convert the number of spindles actually in place into equivalent ring spindles and then reduce the latter to their commercial capacity<sup>1</sup>. By applying this method to seven important cotton manufacturing countries, the following approximate conclusions are obtained: (1) the United States has somewhat less capacity than the United Kingdom and Japan (or India) together, (2) the United Kingdom's capacity is about 10 per cent greater than that of either India or Japan, (3) India and Japan possess substantially identical capacities, and (4) Germany and France also have essentially equal capacities.

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<sup>1</sup> In reducing actual to equivalent ring spindles, it may be assumed that ring spindles operate at an appreciably higher level of mechanised technique than do mule spindles, at least to the extent that both types are employed for similar manufacturing purposes. In reducing equivalent ring spindles to their actual (commercially feasible) capacities, it has been assumed that various economic and social factors hold down spinning activities in all countries below the theoretical maximum of 168 hours weekly. Custom, collective agreement, law, or all three combined, assign limits which vary among countries to the maximum labour week and to the number of daily operating shifts. It should be stressed that the conversions in question have had to neglect the extremely important factors of relative obsolescence and relative



The comparisons which emerge from the application of the method used are valid, if at all, only in their bearing on relative capacity to produce intermediate counts of cotton yarns for which both mule and ring spindles may be used

### *Plant and Equipment Weaving*

Spinning machinery is not by itself an adequate measure of national capacities to produce cotton goods, for the same equilibrium does not necessarily exist between the spinning and weaving-knitting sections of the cotton textile industry in different countries. On the one hand, spindles may be producing more than enough, just enough, or less than enough yarn to satisfy domestic weaving and knitting requirements. On the other hand, the proportion of yarn output going either to the weaving or to the knitting section varies considerably in time and among countries. For a more complete picture of world productive capacity, the distribution of weaving looms and of knitting machines should be considered, limitations of available data restrict the present analysis to looms.<sup>1</sup>

According to the last census of cotton-weaving equipment made by the International Federation of Master Cotton Spinners' and

machine speed. Moreover, no adjustment has been made for variations in average yarn counts produced by different countries. Despite these important limitations, the results obtained would appear to approximate much more closely to the actual relative capacities than do mere numbers of spindles in place. The results obtained are presented (in millions of spindles) as follows:

Country	Actual number of spindles (a)	Equivalent ring spindles (b)	Machine	Mechanical-equivalent
Germany	10.1	8.8	1.0	8.8
China	5.0	5.0	1.0	15.0
France	9.9	8.9	0.9	8.0
India	9.7	0.5	0.6	24.7
Japan	10.9	10.9	2.3	25.1
United Kingdom	41.4	29.2	1.0	29.2
United States	28.2	28.0	1.7	47.7

(a) As of 31 July 1936

(b) Computed by weights as follows: mule spindles, 0.6, ring spindles, 1.0. The weights

Manufacturers' Associations, the cotton power looms of the world in 1934 numbered 31 million, of which about 79 per cent were "ordinary", about 20 per cent "automatic", and the small balance ordinary looms with "automatic attachments". The world distribution by categories of loom is given in table 5

TABLE 5 — COTTON LOOMS IN PLACE, BY TYPE, JANUARY 1934  
(in percentages of world totals)

Country or group	Total looms	Ordinary	Automatic attach- ment	Auto- matic
<i>All countries</i> number (millions)	(31)	(25)	(0.05)	(0.6)
<i>"Old" European cotton textile area</i>				
Germany	7.1	7.8	23.4	2.7
France	6.3	6.6	11.0	4.6
Italy	4.7	3.7	41.3	5.6
United Kingdom	18.8	23.0	6.8	2.3
Major countries	36.9	41.1	82.5	15.2
Other (a)	11.4	13.2	6.8	4.5
Total above	48.3	54.3	89.3	19.7
<i>Asiatic area</i>				
China	1.4	1.8	—	—
India	6.1	7.5	0.0	0.8
Japan	8.9	10.3(c)	—	3.5
Total above	16.4	19.6	0.0	4.3
<i>North American area</i>				
Canada	0.8	0.5	0.0	2.2
United States	19.6	7.8(d)	—	70.4
Total above	20.4	8.3	0.0	72.6
<i>Latin American area</i>				
Brazil	2.6	3.0	6.5	0.5
Mexico	1.1	1.3	—	0.1
Other	0.4	0.4	—	0.3
Total above	4.1	4.7	6.5	0.9
<i>Other areas</i>				
U.S.S.R.	8.0	10.1	—	—
Other countries (b)	2.8	3.0	4.2	2.5
Total above	10.8	13.1	4.2	2.5
All countries	100.0	100.0	100.0	100.0

In general, table 5 shows that potential weaving capacity is heavily concentrated in the old European textile area, which possesses about 48 per cent of all the cotton looms of the world, and about 54 per cent of all "ordinary" looms. Adjustment of potential to actual capacity by the statistical procedures previously employed would undoubtedly raise the combined importance of the Asiatic and North American areas as compared with that of the European, but such adjustment has not been attempted here <sup>1</sup>

As regards the different types of looms, the most important distinction is that between ordinary and automatic. In part, this distinction reflects the difference between capacity to produce "high grade" and "mass production" qualities of cotton cloth respectively. In part, also, it reflects the distinction between

TABLE 6 — COTTON LOOMS IN PLACE, BY TYPE, SELECTED COUNTRIES, 1 JANUARY 1934  
(in percentages of national totals)

Country or group	Ordinary	Automatic attachment	Automatic
<i>Over 50 per cent automatic</i>			
United States	31.6 (a)	—	66.4
Canada	47.2	0.1	52.7
<i>From 20 to 50 per cent</i>			
Italy	62.4	14.7	22.9
<i>From 10 to 20 per cent</i>			
Poland	80.0	0.8	19.2
Switzerland	74.9	6.1	19.0
Minor "New Industrial"	81.8	2.1	16.1
France	83.3	2.9	13.8
Japan (b)	87.5	—	12.5
<i>Under 10 per cent</i>			
Germany	87.3	5.5	7.2
Brazil	92.0	4.1	3.9
United Kingdom	97.0	0.6	2.4
India	97.6	0.0	2.4
Czechoslovakia	98.3	0.3	1.4
U S S R	100.0	—	—

(a) Includes about 5 per cent returned as automatic attachments in 1930

(b) Excluding all narrow looms for home market cloth

SOURCE: *Cotton Cloth Report*, p. 144

<sup>1</sup> As in the case of spindles, it would be possible to calculate for each country the commercially feasible weekly hours of loom activity

“ highly ” mechanised plant and equipment, operating at relatively low labour costs, and “ moderately ” mechanised plant and equipment, working at relatively higher labour costs

From the distributions for each country given in table 6, it may be seen that the striking features of the situation are first, “ ordinary ” looms are dominant in all countries except Canada and the United States, second, they are overwhelmingly preponderant in such countries as Germany, Brazil, India, Czechoslovakia, the U S S R , and the United Kingdom, third, automatic looms are a marked proportion of the total in such countries as France, Italy, Japan, Poland, Switzerland, and minor “ newer ” producing countries, and fourth, automatic looms form a large majority of all looms in the United States and a slight majority of the total in Canada

These differences in the distribution between automatic and ordinary looms and between ring and mule spindles have considerable importance, as they affect the ratio of man-hours to machine-hours and consequently labour costs <sup>1</sup>

### *Volume of Output*

Next to the throughput of raw cotton in spinning mills, and to spindle and loom equipment, the actual output of cotton yarn and piece goods may now be briefly considered

It may be estimated that in 1935 United States mills manufactured about 22 per cent , mills in Japan about 13 per cent , those of the United Kingdom nearly 12, and those of India about 10 per cent of the world output of cotton yarn Other major producers were such countries as Austria, Belgium, China, France, Italy, Netherlands, and U S S R Table 7 presents the available data

It may be further estimated, more roughly than in the case of yarn, that in 1935 United States mills produced almost 29 per cent of the volume of cotton piece goods manufactured by thirteen of the leading textile countries Japan's mills accounted for some 15 per cent of this total, the United Kingdom for a little over 11 per cent , India's mills for a slightly lower percentage, and the U S S R. for about 9 per cent. Other significant producing countries, among those for which data are available, were Germany, Belgium, Brazil, Canada, China, France, Italy, and the Netherlands Table 8 presents the available figures

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<sup>1</sup> See Chapters VIII and X

TABLE 7 — ESTIMATED PRODUCTION OF COTTON YARN IN MAJOR MANUFACTURING COUNTRIES, 1935  
(in percentage of world total)

Country	Last recorded production		Estimated production 1935 (a)	
	Year	Million lbs	Million lbs	Percentage
United States	1929	2,906	2,367	21.8
Japan	1935	1,424	1,424	13.1
United Kingdom (c)	1935	1,225	1,225	11.3
India	1935	1,040	1,040	9.5
China	1934	909	870	8.0
U S S R	1930	660	696	6.4
Germany	1933	634	695(b)	6.4
France	1932	404	481	4.4
Italy	1934	381	368(c)	3.4
Belgium	1933	99	142	1.3
Netherlands	1934	86	95	0.9
Austria	1930	44	77	0.7
All other countries (d)	1935	1,400	1,400	12.8
World (d)			10,880	100.0

(a) Estimated, by assuming that the ratio of 1935 yarn output to mill consumption of raw cotton in the year ending 31 January 1936 was the same as the corresponding ratio in the year of last recorded production

(b) 1933-1934

(c) 1934-1935

(d) Computed from world average weekly yarn output as estimated in *Cotton Trade Statistics, 1936*, table 86

(e) Single yarn only (*Board of Trade Journal*, 28 Jan 1937)

SOURCE — JOINT COMMITTEE OF COTTON TRADE ORGANISATIONS *Cotton Trade Statistics, 1936* tables 72, 73

By and large, the available data on output of yarn and piece goods confirm the main outlines of the international structure of productive capacity revealed by throughput and equipment<sup>1</sup> For the rest, the data on output are important principally for what they suggest about the internal balance between spinning and weaving capacities in particular countries On the one hand, they suggest that such countries as Japan, the United States, and the U S S R use almost all their yarn output for weaving by home mills On the other hand, they suggest that the United Kingdom exports an appreciable share of her yarn output, while China exports a considerable proportion and at the same time furnishes yarn for the large Chinese hand-loom industry

<sup>1</sup> For complete data on yarn and piece goods output, spindle and loom equipment, and mill consumption of raw cotton in recent years, see statistical tables in Volume II

TABLE 8 — ESTIMATED PRODUCTION OF COTTON PIECE GOODS  
IN MAJOR MANUFACTURING COUNTRIES, 1935  
(in percentage of total for countries specified)

Country	Last recorded production		Estimated production, 1935 (b)	
	Year	Converted to million quintals (a)	In million quintals	Percentage
United States	1933	9.9	9.2	28.9
Japan	1935	4.9	4.8	15.1
United Kingdom	1935	3.5	3.5	11.0
India	1935	3.3	3.4	10.7
U S S R	1934	2.6	3.0	9.5
Germany	1928	2.2	2.3 (c)	7.2
France	1932	1.1	1.4	4.4
Italy	1934	1.1	1.1 (d)	3.5
China	1934	0.9	0.9	2.8
Brazil	1929	0.7	0.9	2.8
Netherlands	1933	0.4	0.5	1.6
Belgium	1933	0.4	0.5	1.6
Canada	1934	0.3	0.3	0.9
Total			31.8	100.0

TABLE 9 — ESTIMATED AVAILABLE SUPPLIES OF RAW WOOL,  
PRINCIPAL CONSUMING COUNTRIES, 1934

(in percentages of world total)

Country or group	
World available supplies (in million lbs )	(3,301 0)
<i>" Old " woollen textile area</i>	<i>Percentage</i>
Germany	10 6
France	11 8
Italy	5 5
United Kingdom	18 2
Other Europe (a)	8 7
Total Europe	54 8
Canada	0 9
United States	16 9
Total North America	17 8
Total " old " woollen textile area	72 6
<i>" New " woollen textile area</i>	
China	1 2
India	1 5
Japan	5 5
Total Asia	8 2
Argentina	1 8
Brazil	0 9
Peru	0 4
Other Latin America (b)	0 5
Total Latin America	3 6
Australia	2 0
U S S R	5 9
Other (c)	7 7
Total miscellaneous	15 6
Total " new " woollen textile area	27 4
<i>All countries</i>	<i>100 0</i>

(a) Includes Austria, Belgium, Spain, Irish Free State, Netherlands, Poland, Portugal, Switzerland, Czechoslovakia

(b) Chile, Mexico, Uruguay

(c) Includes Balkan, Baltic, Scandinavian, Oceanic and Near Eastern countries

SOURCE — IMPERIAL ECONOMIC COMMITTEE, *World Consumption of Wool, 1928-1933*, London, 1936, pp 296-297

"consuming" countries is employed advisedly. In the most important consuming countries raw wool is processed in mills, in other consuming countries there is a large handicraft production. In short, although all manufacturing countries are consuming countries, not all consuming countries are manufacturing countries to the same extent.

### *Available Supplies of Raw Wool*

Throughout the period of 1928-1934, according to the Imperial Economic Committee, 11 wool-consuming countries out of 46 surveyed accounted on the average for 84 per cent of the actual weight of estimated supplies of raw wool available. These 11 countries in the order of their importance in 1935 had (in million lbs.) the United States, 651, the United Kingdom, 646, France, 441, Germany, 319, Japan, 244, the U S S R, 240, Italy, 150, Belgium, 118, Spain, 75, Poland, 51, and Czechoslovakia, 38.<sup>1</sup>

The most recent *complete* statistics relate to 1934. In that year, some 40 odd wool-consuming countries had available supplies of 3,301 million lbs. Of this total, almost 73 per cent was available in the woollen textile area of Europe and North America. The remainder—about 27 per cent—was available in countries scattered throughout the “new” woollen textile area. Table 9 on page 59 gives the relevant data.

The distribution of available supplies in 1934 corresponds rather closely to the average pattern of the previous six years. The United Kingdom and the United States (approximately equal in that year) had over 35 per cent of the available supplies of raw wool, the seven most important wool-producing countries—the United Kingdom, the United States, France, Germany, the U S S R, Italy and Japan—accounted for over 75 per cent of the total available wool supplies. Table 10 gives the percentages for the seventeen major wool-consuming countries.

### *Wool-manufacturing Machinery*

Data on available supplies of the raw material necessarily fail to show the distribution of output in different countries between semi-finished manufactures—yarn and tops—and finished manufactures—worsted and woollen cloth and knitted goods. Perhaps the most convenient way of determining relative capacities to produce specific varieties of wool manufactures is to consider the statistics of plant and equipment, particularly as comparable statistics of output are extremely difficult to obtain.

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<sup>1</sup> IMPERIAL ECONOMIC COMMITTEE *World Consumption of Wool, 1928-1935*, pp. 11, 13.



TABLE 10 — ESTIMATED AVAILABLE SUPPLIES OF RAW WOOL,  
PRINCIPAL CONSUMING COUNTRIES, 1934  
(in percentages of world total)

Country	Percentage	Cumulative percentage
United Kingdom	18.2	18.2
United States	16.9	35.1
France	11.8	46.9
Germany	10.6	57.5
U S S R	5.9	63.4
Italy	5.5	68.9
Japan	5.5	74.4
Spain	2.3	76.7
Australia	2.0	78.7
Belgium	2.0	80.7
Argentina	1.8	82.5
India	1.5	84.0
Rumania	1.3	85.3
Iran	1.2	86.5
China	1.2	87.7
Yugoslavia	1.1	88.8
Czechoslovakia	1.0	89.8
All other countries	10.2	100.0
Total	100.0	

SOURCE — IMPERIAL ECONOMIC COMMITTEE *World Consumption of Wool 1928-1937*  
pp 296-297

The distribution of combing machines, an approximate measure of capacity to produce wool tops, is shown in table 11

TABLE 11 — WOOL COMBING MACHINES, IN PRINCIPAL COUNTRIES  
MANUFACTURING WOOL TOPS, 1933-1935  
(in percentages of world total)

Country	Number of machines	Percentage (a)	Cumulative percentage
Germany	3,436	21.2	21.2
United Kingdom	2,800	17.2	38.4
France	2,800	17.2	55.6
United States	2,655	16.3	71.9
Japan	1,129	7.0	78.9
Italy	850	5.2	84.1
Belgium	650	4.0	88.1
Poland	454	2.8	90.9
Spain	365	2.2	93.1
Australia	282	1.7	94.8
U.S.S.R.	199	1.2	96.2
Czechoslovakia	194	1.2	97.2
Switzerland	160	1.0	98.2
Yugoslavia	100	0.6	98.8
All other (b)	175	1.2	100.0
World total (a)	16,249	100.0	

(a) Excluding Argentina, Austria, Bulgaria, India and Sweden for which no data are available.

(b) Including Canada, China, Hungary, Irish Free State, New Zealand, Netherlands, Portugal, Rumania, and Turkey.

SOURCE: *World Consumption of Wool, 1928-1935*, pp. 305-306

TABLE 12 — WOOLLEN AND WORSTED SPINDLES, BY TYPES,  
IN PRINCIPAL MANUFACTURING COUNTRIES, 1933-1935

Country	Spindles (in thousands)			Percentage of total spindles (a)
	Woollen	Worsted	Total	
<i>"Old" woollen textile area</i>				
Germany	1,818	2,037	3,855	14.7
Belgium	376	439	815	3.1
France	680	2,300	2,980	11.4
Italy	570	640	1,210	4.6
Poland	476	472	948	3.6
Czechoslovakia			1,310	5.0
United Kingdom	2,600	4,250	6,850	26.2
Other (b)	622 (d)	467 (d)	1,342	5.1
Total Europe	7,142 (d)	10,605 (d)	19,310	73.7
Canada	107	81	188	0.7
United States	1,651	2,366	4,017	15.3
Total North America	1,758	2,447	4,205	16.0
All "old" woollen textile area	8,900 (d)	13,052 (d)	23,515	89.7
<i>"New" woollen textile area</i>				
Argentina	75	65	140	0.5
Australia			312	1.2
India	41	34	75	0.3
Japan	88	731	819	3.1
U S S R	259	175	434	1.7
Other (c)	501 (e)	134	915 (e)	3.5
All "new" woollen textile area	964 (d)	1,139 (d)	2,695 (e)	10.3
All countries	9,864 (d)	14,191 (d)	26,210 (e)	100.0

TABLE 13 — WOOLLEN AND WORSTED LOOMS, IN PRINCIPAL  
MANUFACTURING COUNTRIES, 1933-1935

Country or group	Looms	
	Thousands	Percentages of world total
<i>"Old" woollen textile area</i>		
Germany	87.5	19.2
Belgium	7.5	1.6
France	50.0	11.0
Italy	21.0	4.6
Poland	16.2	3.5
Czechoslovakia	22.3	4.9
United Kingdom	101.0	22.2
Other (a)	28.7	6.3
Total Europe	334.2	73.3
Canada	2.2	0.5
United States	55.7	12.2
Total North America	57.9	12.7
All "old" woollen textile area	392.1	86.0
<i>"New" woollen textile area</i>		
Argentina	2.2	0.5
Australia	3.8	0.8
India	1.6	0.4
Japan	26.9	5.9
U.S.S.R.	11.9	2.6
Other (b)	17.3	3.8
All "new" woollen textile area	63.7	14.0
All countries	455.8	100.0

(a) Including Austria, Spain, Irish Free State, Netherlands, Portugal and Switzerland.

(b) Including Bulgaria, China, Denmark, Estonia, Hungary, Italy, New Zealand, Norway, Rumania, Sweden, Turkey and Yugoslavia.

SOURCE: *World Consumption of Wool, 1928-1935*, pp. 305-306.

Kingdom, France, and the United States. The spinning of woollen and worsted yarn, in contrast to the combing of wool tops, is more widely diffused, as shown by table 12.<sup>1</sup>

It is evident from the table that capacity to spin woollen and especially worsted yarns is highly concentrated in the older industrial areas of Europe and in the United States. As for weaving

capacity, judged by the distribution of looms, this is shown in table 13<sup>1</sup>

It will be observed in table 13 that the concentration of weaving and knitting equipment in the older industrial countries of Europe and in North America runs to 86 per cent, as compared with that area's 73 per cent of available supplies of raw wool. The divergence is to be explained principally by different bases of computation: supplies include wool available both to mills and to handicraftsmen, looms are limited to power looms in factories. More significant is a divergence between relative spinning and weaving capacity for the "new area" countries. It suggests a flow of yarn from "old" to "new" countries which re-emphasises the more advanced development of weaving over spinning in new industrial countries.

### C — *Silk Textiles*

Capacity to produce silk textiles may be estimated indirectly by examining the data on (1) raw silk, the basic semi-manufacture, and (2) on silk tissues, the finished product. Data at present available permit direct description, although somewhat incomplete, of capacity to produce raw silk, but necessitate, so far as silk tissues are concerned, indirect estimates by calculating available supplies of raw silk and silk wastes, since only fragmentary figures for a few producing countries exist on estimated consumption of raw silk and on output of silk and silk mixture tissues. The relevant data for 1935 are presented in table 14, it must, however, be noted that no allowance is made for carry-over of stocks of raw silk in producing or consuming countries, an omission which may involve considerable error, notably in the case of Japan and the United States<sup>2</sup>.

Capacity to produce raw silk is highly concentrated in the Far East. Japan and Korea, China, Manchuria, and India together account for well over 90 per cent of the world total. Japan and Korea are overwhelmingly predominant in this group, although full data on Chinese and Manchurian output would raise these two

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<sup>1</sup> Like table 12, table 13 must also be read with reservations. Hosiery equipment is included in the returns for some countries (e.g. the United States, the United Kingdom, Rumania), it is excluded from other returns (e.g. Germany, France, Sweden).

<sup>2</sup> In a complete determination of available supplies, account would have to be taken of trade in other semi-manufactures: thrown silk, silk yarn, etc. These data, however, are very difficult to obtain, their omission involves only a small error.

countries much higher in the scale, even figures limited to exports show that these two producers account for almost 25 per cent, compared with 64 per cent for Japan proper. The Mediterranean countries—such as France, Italy, and Greece—the U S S R, and the Near Eastern countries—Bulgaria, Turkey, Iran, Syria and Lebanon—constitute secondary centres. Of these secondary groups, the Mediterranean, with over 5 per cent of the total, is the most important.

TABLE 14 — ESTIMATED PRODUCTION, TRADE AND AVAILABLE SUPPLIES, RAW SILK AND SILK WASTES, 1935 (a)

Country	Production		Trade (million lbs.)		Estimated available supplies	
	Million lbs	Percent- age	(+) Im- ports	(-) Ex- ports	(=) Mil- lion lbs	Percent- age
United States	—	—	72.36	—	72.36	52.3
Japan	86.73	64.1	5.16	74.62	17.27	12.5
China	22.88 (E)	16.9	—	22.88	—	—
France	0.13	0.1	14.33	—	14.46	10.4
Italy (1934)	6.36	4.7	11.79	8.19	9.96	7.2
Manchuria	8.09 (E)	6.0	—	8.09	—	—
United Kingdom	—	—	5.92	—	5.92	4.3
India	2.00 (b)	1.5	3.06	0.93	4.13	3.0
Canada	—	—	3.27	—	3.27	2.4
Germany	—	—	3.14	—	3.14	2.3
U S S R	3.40	2.5	—	0.30	3.10	2.2
Switzerland	—	—	2.03	—	2.03	1.5
Korea	3.62	2.7	—	2.58	1.04	0.7
Greece (1934)	0.68	0.5	—	—	0.68	0.5
Turkey	0.36	0.3	—	—	0.36	0.3
Bulgaria (1934)	0.25	0.2	—	—	0.25	0.2
Austria	—	—	0.16	—	0.16	0.1
Other countries (c)	0.70	0.5	—	0.42	0.28	0.2
Total	135.20	100.0	121.20	118.01	138.41	100.0

(a) As far as possible, silk wastes, a valuable semi-manufactured by-product of raw silk production, are included and silk cocoons, the basic raw material, excluded.

(b) 1931-1932, as estimated by the Indian Tariff Board.

and Korea, France, Italy, and, if data were available, probably China, are the other most important producers of silk tissues, as judged by this criterion. The United Kingdom, India, Canada, Germany, the U S S R, and Switzerland, in approximately that order, follow at a third level of importance. Minor producers are such countries as Greece, Turkey, Bulgaria and Austria.

The available data on estimated actual consumption of raw silk in Japan and in the United States suggest that Japanese silk and mixture tissue output in 1935 was relatively larger than the above figures appear to indicate. United States mills, according to the Silk Association of America, consumed 65.8 million lbs of raw silk in 1935, compared with the Japanese consumption of 33.1 million lbs as estimated by the *Oriental Economist*<sup>1</sup>. Data on actual output of tissues is limited to fragmentary figures for the United States, Japan, and the United Kingdom, as they relate to non-comparable years, however, no definite conclusions can be drawn<sup>2</sup>.

### D — Rayon and Similar Synthetic Fibres

To describe the world distribution of rayon and staple fibre manufacturing capacity, the same procedure can be followed as in the case of silk. Table 15 gives the available data.

For all practical purposes, the world production of rayon yarn and staple fibre is confined to six countries: the United States, Japan, Italy, Germany, the United Kingdom, and France in that order of importance. The first two countries produce about 46 per cent of the world total, the first four over 71 per cent, and the six together almost 90 per cent. Belgium and the Netherlands are the only other producers of consequence.

<sup>1</sup> *Industrial Fibres*, p. 60.

<sup>2</sup> The figures supplied by the Joint Committee of Cotton Trade Organisations (Manchester) are as follows; the importance of silk mixture output may be noted.

	Thousand square yards	
<i>United Kingdom</i>	1930	1934
Pure silk tissues	7,665	6,077
Silk mixture tissues	7,619	2,320
<i>United States</i>		
Tissues (excluding velvets, plushes, upholsteries and tapestries)	1929	1933
All silk	446,407	201,438
Silk and rayon	58,439	30,184
Silk and cotton		5,226
<i>Japan</i>	1934	
Pure silk tissues		
Broad width—over 15 inches	225,157 thousand yards	
Narrow width	35,369 thousand pieces	

Although the weaving of rayon and staple fibre goods is much more scattered (nearly forty countries) than the production of rayon yarn and staple fibre (less than twenty countries), the *effective* manufacturing area is almost as restricted in the case of the finished products as in that of the semi-manufactures. Judged by available supplies of rayon yarn and staple fibre, the United States and Japan together weave about 43 per cent of the total, the addition of Germany and the United Kingdom brings the share close to 66 per cent, that of Italy and France raises it to 82 per cent. The remaining output is distributed among more than thirty countries in all parts of the world.

TABLE 15 — ESTIMATED PRODUCTION, TRADE AND AVAILABLE SUPPLIES OF RAYON YARN AND STAPLE FIBRE, 1935

Country	Production		Trade (a) (million lbs)		Estimated available supplies	
	Million lbs	Percent- age	(+) Im- ports	(-) Ex- ports	(=) Mil- lion lbs	Percent- age
United States	261.7	24.2	—	2.2	259.5	24.2
Japan	231.0	21.3	0.1	30.4	200.7	18.7
Germany	130.0	12.0	13.2	9.6	133.6	12.5
United Kingdom	118.3	10.9	2.4	9.8	110.9	10.3
Italy	154.0	14.2	2.0	46.9	109.1	10.2
France	79.0	7.3	1.9	15.2	65.7	6.1
Belgium	22.7	2.1	2.6	6.6	18.7	1.7
India	—	—	15.9	—	15.9	1.5
Spain	6.0	0.6	9.4	—	15.4	1.4
Canada	12.7	1.2	1.2	—	13.9	1.3
Czechoslovakia	6.1	0.6	9.0	1.2	13.9	1.3
U S S R	12.3	1.1	—	—	12.3	1.1
Poland	12.0	1.1	0.3	0.6	11.7	1.1
China	—	—	8.5	—	8.5	0.8
Mexico	—	—	8.3	—	8.3	0.8
Argentina	—	—	7.6	—	7.6	0.7
Manchuria	—	—	7.4	—	7.4	0.7
Australia	—	—	6.3	—	6.3	0.6
Switzerland	8.1	0.7	4.1	6.3	5.9	0.5
Sweden	1.3	0.1	1.2	—	5.5	0.5
Hungary	0.3(E)	0.0	5.2	0.3	5.2	0.5
Yugoslavia	—	—	5.0	—	5.0	0.5
Brazil	4.2	0.4	0.3	—	4.5	0.4
Netherlands	21.2	2.0	4.0	21.0	4.2	0.4
Other countries (b)	2.1	0.2	23.9	2.5	23.9	2.2
<b>Total</b>	<b>1,083.0</b>	<b>100.0</b>	<b>142.8</b>	<b>152.6</b>	<b>1,073.6</b>	<b>100.0</b>

(a) Rayon only  
 (b) Austria, Chile, Denmark, Egypt, Estonia, Finland, Greece, Netherlands Indies, Latvia, Lithuania, Norway, Peru, Portugal, Rumania, Syria and Turkey  
 (E) = Exports

E — *Linen Textiles*

The international distribution of linen textile manufacturing likewise has to be estimated indirectly from figures of production and trade for flax, the raw material<sup>1</sup> The available data are presented in table 16

TABLE 16 — ESTIMATED PRODUCTION, TRADE, AND AVAILABLE SUPPLIES, FIBRE FLAX, 1935

Country	Production (thousand tons)	Trade (a) (thousand tons)		Estimated available supplies	
		(+) Im- ports	(-) Ex- ports	(=) Thou- sand tons	Percent- age
USSR	541	—	58	483	62.6
United Kingdom	7	56	1	62	8.0
France	14	29	—	43	5.6
Germany	14	19	—	33	4.3
Poland	39	—	12	27	3.5
Lithuania	31	—	10	21	2.7
Czechoslovakia	5	15	—	20	2.6
Latvia	24	—	8	16	2.1
Japan	4	11	—	15	1.9
Yugoslavia	11	—	—	11	1.4
Belgium	28	—	18 (b)	10	1.3
Rumania	7	—	—	7	0.9
Estonia	10	—	4	6	0.8
Canada	6	—	—	6	0.8
Italy (1934)	2	3	0	5	0.6
United States	—	5	—	5	0.6
Sweden	—	2	—	2	0.3
Netherlands	7	—	7	0	—
Irish Free State	1	—	1	0	—
Total*	751	140	119	772	100.0

(a) Flax and tow

(b) Net export balance

SOURCE — IMPERIAL ECONOMIC COMMITTEE *Industrial Fibres*, pp 64, 66, 70

The predominance of the Soviet Union as a producer of flax fibre, as shown in Chapter III, thus corresponds to its leadership as a manufacturer of linen textiles<sup>2</sup> Other significant manufac-



turing countries, at least in volume, are the United Kingdom, France, Germany, Poland, and the Baltic and Balkan countries taken as groups. If data on the value of linen manufactures produced could be obtained, such countries as Belgium and Czechoslovakia would probably attain more significant rank than they enjoy from the point of view of volume.

### F — Jute Textiles

The world distribution of capacity to produce jute yarn and cloth is suggested by the data given in table 17, the figures thus presented are confirmed for India, the United Kingdom, and Germany, by returns giving either mill consumption of jute or yarn output.<sup>1</sup>

TABLE 17 — ESTIMATED PRODUCTION, TRADE, AND AVAILABLE SUPPLIES, RAW JUTE, 1934

Country	Production (thousand tons)	Trade (thousand tons)		Available supplies	
		(+) Im- ports	(-) Ex- ports	(=) Thou- sand tons	Percent of
India	1,518	10	721	807	52.2
United Kingdom	—	173	—	173	11.6
Germany	—	105	—	105	7.1
France	—	91	—	91	6.1
Italy	—	55	—	55	3.7
United States	—	53	—	53	3.6
Spain	—	46	—	46	3.1
Belgium	—	40	—	40	2.7
Czechoslovakia	—	37	—	37	2.5
Japan (including Formosa)	10	19	—	29	1.9
Brazil	—	18	—	18	1.2
Poland	—	11	—	11	0.7
Argentina	—	9	—	9	0.6
China	3 (E)	8	3	8	0.5
Netherlands	—	7	—	7	0.5
Nepal	10 (E)	—	10	—	—
Manchuria	3 (E)	—	3	—	—
Total	1,544	682	737	1,489	100.0

(E) = Exports

SOURCE — IMPERIAL ECONOMIC COMMITTEE, *Industrial Fibres*, 1936, pp. 73, 75-78

No statistics of the production of handspun yarns in the U. S. S. R. are available (Data from *Industrial Fibres*, 1936, pp. 70-71).

<sup>1</sup> Estimated mill consumption of jute (in thousand tons): India, 770 in 1933-1934 and 820 in 1934-1935, in Germany, 105 in 1933; estimated production of jute yarn (in thousand tons): United Kingdom, 167 in 1933 (*Industrial Fibres*, pp. 79-80).

Although India does not, as a manufacturer of jute cloth and bagging, enjoy anything like its monopoly as a producer of raw jute, nevertheless that country is responsible for considerably more than half of the world's consumption of the raw material. The other important jute manufacturing countries are either countries of advanced industrialism (e g the United Kingdom, Germany, and France), or countries in whose economic life agricultural exports play an important part (e g Brazil, Argentina, and China)

### III — SUMMARY

Each textile manufacturing branch considered in the foregoing pages thus reveals its own peculiar pattern of concentration and diffusion. Thus world capacity to produce cotton yarn, cloth and knit goods is predominantly concentrated in nine countries (the United States, Japan, the United Kingdom, India, China, Germany, the U S S R, France and Italy), the capacity to produce woollen and worsted semi-finished and finished manufactures, likewise in nine countries (the United Kingdom, the United States, France, Germany, the U S S R, Italy, Japan, Spain and Belgium), the capacity to produce raw silk, in the Far East (mainly Japan), silk manufactures, in three Western countries (the United States, France and Italy), and in two Far Eastern ones (Japan and China), etc.

Significant variations in the structure of world textile production appear also when the individual countries are arranged in larger regional groups. Thus the "old" European industrial area, most diversified of all, is heavily predominant in wool, has a slight margin on any other area in cotton, and ranks important in silk, linen, rayon, and jute. The Asiatic industrial area is close behind Europe in cotton, is very important in silk and rayon, has a fair share of wool manufacturing, and dominates absolutely in jute. The North American industrial area, heavily predominant in silk and rayon, is one of the leaders in cotton and wool, and manufactures a fair share of the world's jute. The Latin-American area is significant in cotton, wool, and jute manufacturing. Of other countries, the U S S R predominates in linen, while enjoying appreciable importance in at least cotton and wool. All things considered, the centre of gravity of textile manufacturing is still in Western and Central Europe, with a definite tendency to shift towards the Far East and other areas of rapid industrialisation.

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## CHAPTER V

### WORLD TRADE IN TEXTILES

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The present chapter aims to outline the channels of international trade through which the different textile fibres and their products flow. On the one hand, it examines the countries which export and import raw materials, semi-manufactures, and fully manufactured products. On the other hand, it considers the specific networks of trade between exporting and importing centres. Each fibre is considered in turn.

#### I — COTTON TEXTILES

The cotton textile trade will be examined first, in its export and import phases, from the trade in raw cotton to that in cotton piece goods.

##### A — *Raw Cotton*

Some of the major cotton textile countries are virtually self-sufficient as regards raw cotton. This is true of Brazil, China, the United States, India, Mexico and the U.S.S.R. The other manufacturing countries import practically all of their raw cotton. Taking the world as a whole, the United States furnishes from 40 to 50 per cent of the (mill) consumption of raw cotton, India more than 20 per cent, Egypt from 4 to 5 per cent, and other countries from 20 to 25 per cent. Of the other countries whose output of raw cotton flows into world trade, the most important, to judge by mill consumption data, are China, Brazil, East and West Africa, Anglo-Egyptian Sudan, and Peru in approximately that order. Certain importing countries show special features in their patterns of trade in raw cotton. Thus Germany's imports of raw cotton, in recent years, have been drawn heavily from Brazilian and Peruvian sources, cotton from the Belgian Congo forms a substantial part of Belgian imports; Egyptian cotton predominates in imports to Switzerland, and forms a very important part of

imports into the United Kingdom, cotton from the British colonies in Africa figures prominently in the imports of both India and the United Kingdom<sup>1</sup> These special features are to be explained partly by differences in the quality of yarn output in the various countries, and partly by considerations of commercial policy

Table 1 presents a summary picture of world trade in raw cotton

TABLE 1 — TRADE IN RAW COTTON, SELECTED COUNTRIES,  
1935  
(in million lbs)

Imports into	Imports from				
	Egypt	United States	India	Brazil	Other countries
Germany	87 0	165 0	61 0	182 0	188 0
Belgium	7 5	65 4	62 8	11 7	65 0
China	(a)	61 0	47 0	(a)	13 0
United States (1934)	47 0	—	13 0	(a)	21 0
France	102 1	238 9	92 1	26 6	38 5
India	45 4	23 5	—	(a)	126 1
Italy (1934)	74 0	254 0	70 0	(a)	14 0
Japan	71 0	762 0	689 0	(a)	103 0
Netherlands	1 8	38 7	18 3	6 3	24 7
Poland	16 5	107 8	14 3	(a)	8 8
United Kingdom	272 0	562 0	165 0	60 0	205 0
Switzerland	31 0	18 1	3 5	(a)	5 9
Czechoslovakia	24 8	44 4	15 9	(a)	82 0

(a) Included in imports from 'other countries'

SOURCE *Cotton Trade Statistics* 1936 tables 33-46

## B — Cotton Yarn

Although cotton yarn is manufactured the world over, only fourteen countries produce an appreciable "surplus" for the export trade Ten countries of Western and Central Europe account for 75 to 80 per cent of the volume of world exports, the three industrial countries of Asia, for 20 per cent, the United States is responsible for the remainder So far as individual exporters are concerned, the United Kingdom overshadows all the rest, supplying over a third of the total, with Italy supplying an additional seventh. Japan and China, among Far Eastern,

<sup>1</sup> For complete data on consumption of particular types of cotton by particular countries in recent years, see April and October numbers 1933-1936 of the *International Cotton Bulletin*

and Czechoslovakia, Austria, France and Belgium among European countries, lead the remaining principal exporters Table 2 presents the relevant data

TABLE 2 — EXPORTS OF COTTON YARN, PRINCIPAL EXPORTERS, 1935  
(in percentages of world total)

Country	Percentage	Cumulative percentage
United Kingdom	36.0	36.0
Italy (1934)	14.5	50.5
Japan	9.7	60.2
China	8.2	68.4
Czechoslovakia	8.1	76.5
Austria	5.8	82.3
France	4.5	86.8
Belgium	3.6	90.4
India	2.5	92.9
Switzerland	2.4	95.3
United States	1.6	96.9
Netherlands	1.5	98.4
Germany	1.4	99.8
Poland	0.2	100.0
	100.0	

SOURCE *Cotton Trade Statistics*, 1936, table 131

Cotton yarn exports find their consumption uses in the weaving mills and in the handloom workshops of foreign countries. The resulting pattern of world trade exhibits complexities characteristic of many semi-finished manufactures. Thus, countries with old-established cotton textile industries export yarn to countries where cotton manufacturing is still a "new" industry (e.g. the United Kingdom exports to Argentina, Australia, Rumania, Denmark, etc., Italy to Argentina, Rumania and Yugoslavia, Czechoslovakia to Rumania and Yugoslavia, etc.). Again, countries manufacturing special qualities of yarn export to other countries where domestic output of such yarn does not satisfy requirements (e.g. the United Kingdom exports the largest part of such yarn to such countries as Germany, Canada, India, the Netherlands, Sweden and Switzerland, France its largest share to such countries as Germany, Netherlands and Switzerland, China and Japan each to India, Czechoslovakia and Italy fair proportions of their exports to Germany and Switzerland, etc.). Finally, the same country often appears both as an importer and an exporter of cotton yarn (e.g. the United Kingdom, which exports on such a large scale, also imports cotton yarn from the Netherlands, Belgium, India, Germany, etc., China, which exports to India, imports cotton yarn from Japan and the United Kingdom, Germany, Belgium, France, the Nether-

lands, Switzerland, Czechoslovakia, etc., are all involved in similar export-import relations with regard to cotton yarn)

Despite these complexities of trade among individual countries and groups of countries, several fairly well-defined regional patterns emerge. First, the highly industrialised countries of Western Europe participate in a large two-way trade in cotton yarn among themselves. Second, these same countries furnish substantial quantities of yarn to the less industrialised countries of the Balkans and of Latin America. Third, China, India and Japan constitute for cotton yarn trade almost a self-enclosed system, in which the United Kingdom is practically the only outside participant. Table 3 is suggestive of the complex structure of cotton yarn trade.

TABLE 3 — TRADE IN COTTON YARN, SELECTED COUNTRIES, 1935  
(in million lbs.)

Exports to	Exports from					
	France	Italy (1934)	Japan	Czecho- slovakia	United Kingdom	China
Germany	4.41	1.0	(a)	2.0	30.3	(a)
Argentina	1.31	4.1	(a)	(a)	8.4	(a)
China	(a)	(a)	6.9	(a)	0.9(b)	—
India	(a)	(a)	17.8	(a)	10.6	14.4(c)
Netherlands	0.54	(a)	(a)	(a)	15.2	(a)
Rumania	0.60	13.7	(a)	12.8	4.0	(a)
Switzerland	0.52	0.3	(a)	(a)	4.7	(a)
Yugoslavia	(a)	21.4	(a)	8.7	(a)	(a)
British Dominions(d)	(a)	(a)	(a)	(a)	10.1	(a)
Scandinavia (e)	(a)	(a)	(a)	(a)	13.3	(a)
Other countries	10.27	16.8	13.6	8.2	44.2	17.8
All countries	17.65	57.3	98.3	31.7	141.7	32.2

by these 1935 figures, two of these countries, Japan and the United Kingdom, furnish about 70 per cent of the total in volume and about 64 per cent in value. As between the United Kingdom and Japan, the latter leads in volume of exports (approximately 4 to 3 by weight and 5 to 4 by yardage in 1935), while the former leads in value (approximately 7 to 5). France and Italy, together responsible for about 10 per cent of exports in volume and about 12 per cent in value, are the second most important group. Of the remaining major exporters, the United States, India, Belgium, the U S S R, Czechoslovakia, the Netherlands, Germany and Switzerland, in that order, are substantial factors as measured by 1935 export values.

TABLE 4 — EXPORTS OF COTTON PIECE GOODS, SELECTED COUNTRIES, 1935

Country	Volume		Value	
	Thousand quintals (a)	Percentage	Million £ sterling	Percentage
United Kingdom	1,762.6	29.9	49.5	37.0
Japan	2,410.8	41.0	29.1	27.4
France	346.7	5.9	8.3	7.8
Italy (1934)	241.9	4.1	1.4	4.1
United States	186.6	3.2	4.1	3.8
India (by sea)	68.1	3.1	1.5	1.8
" (by land)	114.8		2.5(b)	
Belgium	169.7	2.9	3.9	3.6
U S S R	191.7	3.3	2.8	2.6
Czechoslovakia	64.5	1.1	2.4	2.1
Netherlands	103.4	1.8	2.3	2.1
Germany	95.7	1.6	2.2	2.1
Switzerland	24.7	0.4	1.7	1.6
Spain	34.5	0.6	0.8	0.8
Austria	10.3	0.2	0.5	0.5
Portugal	25.1	0.4	0.4	0.4
China	28.5	0.5	0.4	0.4
Poland	3.7	0.1	0.1	0.1
Total above countries	5,883.3	100.0	106.7	100.0

As will be brought out in the sequel, the various exporting countries compete directly over a wide range of the world market. It must nevertheless be stressed that there is a considerable range within which such exports are at least partially non-competitive. This is suggested by the distribution of exports among different types of cloth, and is indicated strongly by comparative unit values of exports, and by the general grouping of the markets served by particular exporting countries.

TAB. 5 — EXPORTS OF COTTON PIECE GOODS, BY KIND,  
SELECTED COUNTRIES, 1935  
(in percentage of total of all kinds)

	Ger- many	Bel- gium	France	Italy (a)	Japan	United King- dom	Switz- erland	Czecho- slova- kia
Grey	20.9	74.7	10.2	12.9	34.7	16.0	58.3	24.0
Bleached	5.4	1.9	28.9	12.6	18.8	29.3	16.2	9.5
Printed	28.4	18.9	12.8	5.8	—	22.6	4.0	29.9
Piece dyed	5.4	—	31.2	55.5	46.5	26.5	4.0	9.9
Yarn dyed	36.4	4.4	5.9	13.3	—	5.5	1.2	26.5
Unspecified	3.5	0.1	11.0	—	—	—	16.2	0.1
All kinds	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) 1934

SOURCE: *Cotton Trade Statistics, 1936*, tables 180-198

To contrast the United Kingdom and Japan, the two great export competitors in world cloth markets, Japan's exports of uncoloured cloth are seen in table 5 to be heavier in goods in the grey, while those of the United Kingdom are biased toward bleached fabrics. To select other groups of competitors, the distribution by types of cloth is much the same for Germany and Czechoslovakia, appreciably different for France and Italy, and divergent for Belgium and Switzerland.

Similar differences are revealed by figures on the unit values of countable cotton cloth exports.<sup>1</sup> A few typical examples for 1934 are given in table 6.

<sup>1</sup> "Countable cotton cloth" is a designation used in United States statistics, and signifies all cotton cloth on which, if it were imported, the import duty would be based on the average yarn count. The term is practically coterminous with the more inclusive term "cotton piece goods."



TABLE 6 — UNIT VALUE, EXPORTS OF COUNTABLE COTTON CLOTH,  
SELECTED COUNTRIES, 1934

(in United States dollars)

Country	\$ per square yard
Japan	0 056
United Kingdom	0 100
	\$ per lb
Germany	0 607
Austria	0 978
Belgium	0 700
France	0 577
Italy	0 417
Switzerland	1 419
Czechoslovakia	0 823

SOURCE — UNITED STATES TARIFF COMMISSION *Cotton Cloth*, (Report No 112 second series), Washington, 1936, p 141

Even allowing for disequilibrium in exchange rates, these variations in unit values are striking. It is seen that on a square yard basis, unit values of cotton goods exports from the United Kingdom average almost double those of Japanese exports<sup>1</sup>. The spread is so large, even allowing for the possibility of some equivalent goods being sold at divergent prices, as to suggest that exports of the two countries are destined in some measure for non-competing levels of income. As between France and Italy, the unit values of French exports exceed those of Italian goods in a ratio of over 5 to 4. Switzerland's exports attain the highest unit values of any country, they are about 40 per cent above those of the nearest exporter, Austria. Their high value indicates exports destined in a large measure for specialised markets. Switzerland, Austria, and Czechoslovakia together might be described as joint competitors in quality markets. Similarly, Belgium, Germany and France might be regarded, from the price range point of view, as also constituting a somewhat homogeneous competitive group.

Subsequently in this chapter, and still more fully in Chapters VI and VIII, the question of how particular import markets are attached to particular countries exporting cotton fabrics will be considered. For the time being, a few brief generalisations will suffice. As between Japan and the United Kingdom, the chief shipments are in each case towards the Far East and India,

<sup>1</sup> In this respect, 1934 figures are not essentially different from those of the two previous years. Compare *Cotton Cloth Report*, pp 139-141.

Africa, and Latin America. Nevertheless, the Far Eastern and Indian markets have been the destination for 50 per cent or more of Japan's but for only 30 per cent of the United Kingdom's shipments by yardage in recent years<sup>1</sup>. In contrast, Africa as a whole takes from 15 to 20 per cent of Japan's but about 25 per cent of British exports<sup>2</sup>. Again, the Latin-American market purchases close to 20 per cent of the exports from the United Kingdom, but accounts for only 10 per cent of those from Japan. Moreover, the various qualities of cotton cloth involved in exports from the two countries are, in each case, distributed over somewhat different markets<sup>3</sup>.

Of the other major exporting countries, each serves in large measure a network of markets more or less peculiar unto itself. Thus Latin America and the Philippine Islands dominate in the markets for cotton cloths exported by the United States, the French colonies comprise almost the totality of the consuming centres served by France, Balkan, Near Eastern and Latin-American countries dominate in the export markets of Italy, Central European and Balkan countries in those of Czechoslovakia and, together with the Near East, in those of Germany, Central and Western European countries in those of Switzerland, Ceylon in those of India, etc.<sup>4</sup>. As these markets of the different exporting countries interlace to a considerable degree, all exporting countries meet in direct competition in many markets. Nevertheless the export market structures peculiar to each case reflect, in part, the existence of areas from which effective competition is more or less excluded, whether owing to trade policies, specific consumer requirements, geographical conditions, or tradition<sup>5</sup>.

### *Imports*

As an imported commodity, cotton cloth enters two main types of markets. First, there is what might be called the market

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of final consumption here the buying is either directly by individuals for clothing and other purposes, or by finishing and making-up enterprises and by industrial consumers for the manufacture of clothing, furnishings, tyres, bags, belting, etc. Second, there is what might be called the market of intermediate consumption here the buying is by textile finishing enterprises active in the improvement trade for re-export purposes. In the present section, primary emphasis will be laid on the final consumption market, although in such countries as Belgium, the Netherlands and Switzerland the improvement trade accounts for a very substantial share of piece goods imports<sup>1</sup>. Moreover, the present section emphasises imports of cotton cloth destined for clothing and furnishings, despite the recognised important industrial and agricultural uses of cloth in all countries.

In an attempt to establish the approximate outlines of the international cotton piece goods markets, table 7 below has been compiled from the most recent data available. In presenting table 7, its incompleteness, particularly as regards Colonial Africa and Latin America, must be strongly emphasised, together with the rough character of the conversions from units of yardage into units of weight, and the implied assumption, in certain cases, that 1935 imports did not differ greatly from those of 1934. Despite these reservations, the table is believed to present a picture which, with proper adjustments as regards Colonial Africa and Latin America, supports the conclusions given below.

Virtually all countries import more or less substantial quantities of cotton tissues for final consumption as above defined. Nevertheless, several well-articulated areas of concentration appear when the data on imports are considered. First, it becomes evident that the Far Eastern and Indian markets outrank all others, absorbing not far from a third, in volume and in value, of all the cotton cloth moving in world trade. Second, the probability is indicated that upon a full accounting the Colonial African and Latin-American markets would rank next to the Far East. Third, the British Dominions, regarded as a market unit, probably are responsible for something like a tenth of the value of world cotton fabric imports, and the Near Eastern market for approximately the

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<sup>1</sup> Thus in 1935 Switzerland's net imports of cotton piece goods for final consumption amounted to 9.2 thousand quintals, while imports for the improvement trade came to 28.3 thousand. Similarly, in 1934, over 85 per cent. of the imports of cotton cloth in the grey into the Netherlands was for bleaching, putting, and dyeing for re-export (*Cotton Trade Statistics* 1936, tables 225, 226).

same percentage Fourth, excluding the Balkan countries (about 3 per cent of the value total), the remaining imports are taken by the more highly industrialised countries, themselves major manufacturers and exporters of such commodities

Almost all of the cotton cloth moving toward the Far Eastern, Indian, Colonial African, Latin-American, British Dominions, Near Eastern and Balkan markets, is destined for final consumption in the importing country To a large extent this is also true of the imports taken by the more highly industrialised countries Nevertheless, a considerable proportion of the latter imports represents the improvement-re-export trade, particularly in Western and Central Europe, while entrepôt trade reaches substantial dimensions in such centres as Aden, Singapore, and Hong Kong

TABLE 7 — IMPORTS OF COTTON FABRICS, MAJOR MARKETS,  
1934 OR 1935  
(by volume and value, percentage of world exports)

Market or country	Volume			Value	
	Amount	Unit	Percentage (X)	£ millions	Percentage
<i>Asiatic Total</i>	1,958	X	30.7	30.28	28.4
India	1,033	L		13.64	
Netherlands East Indies	600	L		7.73	
Philippine Islands	135	S		2.01	
Siam		—		1.81	
China		—		1.57	
French Indo China	74	Q		1.39	
British Malaya	60	L		1.08	
Ceylon	56	L		1.05	
<i>Colonial Africa Total</i>	786	X	12.3	5.83	5.6
Algeria	117	Q		3.21	
Nigeria	115	S		2.50	
Northern Rhodesia	5	L		0.12	
Other Africa	549	X			
<i>Latin America Total</i>	612	X	9.6	13.19	12.4
Argentina	295	Q		7.22	
Cuba	95	Q		1.73	
Colombia	84	Q		1.65	
Haiti	8	S		0.48	
Other countries	130	X		2.11	
<i>British Dominions Total</i>	421	X	6.6	11.46	10.7
Australia	163	L		4.26	
Union of South Africa	186	L		3.70	
Canada	72	Q		1.52	
New Zealand		—		1.70	
Southern Rhodesia		—		0.28	

TABLE 7 — IMPORTS OF COTTON FABRICS, MAJOR MARKETS,  
1934 OR 1935 (*continued*)

(by volume and value, percentage of world exports)

Market or country	Volume			Value	
	Amount	Unit	Percentage (%)	£ millions	Percentage
<i>Near East</i> Total	708	X	11.1	9.78	9.2
Egypt	231	S		3.75	
Turkey	192	Q		2.21	
Iran	98	Q		1.74	
Other	247	X		2.08	
<i>Larger industrial countries</i>	155	X	2.4	5.19	4.9
<i>Smaller industrial countries</i>	98	Q	1.5	3.47	3.3
<i>Scandinavian and Baltic</i>	122	Q	1.9	3.18	3.0
<i>Balkan countries</i>	106	Q	1.7	3.16	3.0
Total, above figures	4,966	X	77.8	85.5	80.1
Exports, 17 countries	6,384	X	100.0	106.7	100.0

*Note* — Most data relate to 1935, for French Indo-China and Turkey, to 1934. Available values computed at average sterling rate for year in question as quoted in *Statistical Year-Books of the League of Nations*. Available volume figures in million linear (L) or square (S) yards taken equal to thousands of quintals (Q) for totals.

are confirmed by the typical 1934 unit value figures given in table 8

TABLE 8 — UNIT VALUES, IMPORTS OF COUNTABLE COTTON CLOTH,  
SELECTED COUNTRIES, 1934

(in United States dollars per volume unit)

Country	Unit value
	\$
France	2 617 per kilogram
Germany	1 806 „ „
Yugoslavia	1 276 „ „
Sweden	1 206 „ „
Czechoslovakia	1 129 „ „
Canada	1 098 „ „
Argentina	1 093 „ „
Cuba	0 871 „ „
Nigeria	1 090 per 10 sq yds
Philippine Islands	0 820 „ „ „
India	0 690 per 10 linear yds

SOURCE: Computed from *Cotton Cloth Report*, 1936, p. 141. LEAGUE OF NATIONS, *International Trade Statistics* 1935. For purposes of approximate comparison, 10 yards (linear or square) may be taken equal to one kilogram.

For a variety of reasons—economic, commercial, and political—each important country takes its cotton cloth from a somewhat different group of suppliers. India, Egypt, and China, for example, obtain virtually all their imports from Japan and the United Kingdom, in the Netherlands East Indies, Japanese goods are overwhelmingly predominant, followed by imports from the Netherlands, in Argentina, the main supplier is the United Kingdom whose only substantial rivals are Japan and Italy, in the Philippine Islands, the United States shares the market with Japan, in Turkey and in Yugoslavia, the major furnishers of cotton cloth are Japan, the United Kingdom, Italy, Germany, and Czechoslovakia, in French West Africa, the mother country controls the market, the bulk of the exports to Nigeria are supplied by the United Kingdom, Switzerland purchases a substantial majority of its net imports from the United Kingdom, and of its imports for improvement and re-export, from Germany. Some typical import market patterns are presented in table 9.

The heart of the problem of international competition in cotton textiles is revealed in table 9. All major cotton manufacturing countries have some appreciable stake in almost all importing markets. To this extent, all the cotton manufacturing countries meet in world competition.

TABLE 9 — IMPORTS OF COTTON PIECE GOODS, BY ORIGIN, SELECTED COUNTRIES, 1935

(by volume)

Imports into	Imports from									All countries		
	Germany	United States	France	Italy	Japan	Netherlands	United Kingdom	Switzerland	Czechoslovakia		USSR	Other countries
French West Africa (thousand quintals) (b)	0.4	(a)	52.4	(a)	10.5	2.2	27.3	(a)	1.4	(a)	9.3	103.5
Argentina (thousand quintals) (c)	0.9	1.0	1.0	62.3	49.9	2.0	141.9	(a)	0.7	6.7	28.6	295.0
Australia (million linear yards) (d)	(a)	1.9	(a)	(a)	52.5	(a)	107.0	(a)	(a)	(a)	1.5	162.9
Colombia (thousand quintals) (c)	(a)	15.8	(a)	(a)	20.5	(a)	36.4	(a)	(a)	(a)	7.4	80.1
Egypt (million square yards)	(a)	(a)	(a)	19.0	169.9	(a)	36.1	(a)	(a)	(a)	6.3	231.3
United States (million square yards)	0.5	(a)	0.3	(a)	36.5	1.0	9.1	6.8	2.3	(a)	6.3	63.7
India (million linear yards)	(a)	6.0	(a)	1.3	525.8	1.6	489.0	6.7	(a)	(a)	2.6	1,033.0
Java and Madura (million linear yards)	(a)	0.1	(a)	0.7	308.5	50.3	8.0	1.0	(a)	3.0	2.2	373.8
Nigeria (million square yards)	2.9	(a)	(a)	2.1	2.2	2.4	94.1	(a)	(a)	2.7	5.5	114.9
Philippine Islands (million square yards)	(a)	42.2	(a)	0.1	86.6	(a)	2.2	2.0	(a)	(a)	2.6	135.5
United Kingdom (million square yards)	1.7	0.3	0.6	(a)	40.3	4.2	(a)	1.1	(a)	0.1	11.0	29.3
Sweden (thousand quintals)	1.8	0.1	0.1	0.6	5.3	(a)	20.4	(a)	0.9	2.0	7.2	58.7
Switzerland (thousand quintals)	(a)	(a)	1.0	0.3	(a)	(a)	1.5	(a)	(a)	(a)	2.3	4.2
net imports	18.2	(a)	2.5	(a)	(a)	(a)	6.5	(a)	(a)	(a)	1.1	28.3
imports for export	13.4	(a)	0.3	28.1	25.1	0.4	14.1	(a)	5.9	22.8	8.9	119.0
Turkey (thousand quintals)	(a)	(a)	(a)	7.7	3.3	(a)	5.9	(a)	6.2	(a)	2.9	28.0
Yugoslavia (thousand quintals)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)
China (thousand £ sterling)	(a)	(a)	(a)	(a)	1,131	(a)	399	(a)	(a)	(a)	50	1,570

(by value)

(a) Included in other countries  
(b) Including 10.6 million yards taken as 10.6 thousand quintals  
(c) 1934  
(d) Fiscal year 1934-1935

SOURCES: Cotton Trade Statistics, 1934, Tables 21, 22, 23, U. S. Tariff Commission, Cotton Classification, 1936, p. 77. In reading this table millions of square or linear yards may be taken as roughly equivalent to their units of quintals for purposes of comparison.

## II — WOOLLEN TEXTILES

As in the case of cotton, so also in that of wool, the world market structure will be described separately for raw materials, semi-manufactures, and finished goods

### A — *Raw Wool*

As indicated in Chapter III, the only wool-manufacturing countries of consequence which approach self-sufficiency in the raw material are Spain, the United States, and the USSR. As for the wool-manufacturing world as a whole, it is almost entirely dependent on imports supplied by five countries: Australia, Argentina, Union of South Africa, New Zealand, and Uruguay in that order of importance. In fact, of the total world clip of 1935, almost 60 per cent entered the channels of international trade, of this quantity, over 85 per cent was supplied by the five countries specified <sup>1</sup>. The relevant data are summarised in table 10.

TABLE 10 — TRADE IN RAW WOOL, SELECTED COUNTRIES, 1935  
(in million lbs., greasy basis)

Exports to	Exports from					Total imports (actual weight)	
	Aus- tralia	Argen- tina	Union of South Africa	New Zealand	Uru- guay	Gross	Net
All countries	1,005	341	268	249	121		2,092(a)
United Kingdom	314	87	57	173	27	864	581
France	108	54	66	12	12	386	338
Germany	37	46	83	3	21	273	270
Japan	236	1	5	8	1	244	244
Belgium	156	20	24	18	11	235	118
United States	12	65	2	10	12	200	193(b)
Italy	12	40	13		23	110	109
Other countries	130	28	18	25	14		239



It is seen in table 10 that the seven countries specified as importers of raw wool in 1935 were responsible for close to 90 per cent of all wool imports by all countries. It follows that the raw wool trading relations between the five great exporters and these seven importers constitute almost the entire system of international buying and selling of raw wool. The somewhat divergent patterns of particular outlets attaching to individual exporters, and of particular suppliers to individual importers, are to be explained, as in the case of cotton, largely by trade policies, geographical factors, and specific consumer requirements.

### *B — Wool Tops and Yarns*

World trade in wool tops is extremely specialised and limited, for,

The combing industry demands large-scale operation and a high degree of organisation, and the industry is, therefore, concentrated in the more important wool textile countries. Of the chief producing countries, Japan, Italy and the United States retain the whole of their output. The United Kingdom, France, Germany and the United States are the chief producers.<sup>1</sup>

Some thirteen wool manufacturing countries constitute almost the entire wool top trading system of the world. All of them, with the exception of Canada (an importer on balance) and Australia (a net exporter) are Western or Central European, more than half of them export to a greater or lesser degree (France and the United Kingdom, approximately equal exporters, providing the bulk), all of them except Australia import in substantial quantities (Germany, Czechoslovakia and Belgium taking well over half of total imports), three countries ordinarily show net exports, seven usually have a surplus of imports, while in three the balance is very small. Relevant figures for 1934 and 1935 are shown in table 11.

World trade in wool yarns covers a wider range of countries than does world trade in wool tops, for the production of wool yarn is more widespread than that of wool tops, and woollen manufacturing likewise more widespread than worsted manufacturing. Although twelve countries ordinarily export substantial quantities of wool yarn, more than a third of the total is supplied by the United Kingdom, about one-fourth by France, and the largest shares of the remainder by Czechoslovakia, Germany and Belgium. Japan is the only

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<sup>1</sup> *World Consumption of Wool, 1928-1935*, p. 18

country outside of Central and Western Europe which exports wool yarn in any quantity. The importing market is, in contrast, extremely diversified. It includes some thirty countries, among which are found all twelve of the substantial exporters. The great bulk of wool yarn imports is taken by Western and Central European countries, of which Germany, the Netherlands, and Belgium are the most important. Substantial proportions go also to the Balkan-Near Eastern markets, to Scandinavia, to the Far East, to the Baltic countries, and to Latin America, in roughly that order of importance. Table 12 shows recent data in point.

TABLE 11 — TRADE IN WOOL TOPS, MAJOR TRADING COUNTRIES,  
1934 AND 1935  
(in million lbs.)

Country	Imports 1934	— Exports 1934	= Trading balance 1934	Trading balance 1935
<i>Ordinarily net exporters</i>				
France	0.8	46.5	— 45.7	— 45.4
United Kingdom	0.8	41.7	— 40.9	— 54.9
Australia	—	2.9	— 2.9	
<i>Ordinarily small balances</i>				
Italy	1.0	0.9	+ 0.1	
Switzerland	4.5	3.7	+ 0.8	+ 0.9
Belgium	13.0	12.2	+ 0.8	+ 0.7
<i>Ordinarily net importers</i>				
Netherlands	2.2	—	+ 2.2	+ 2.7
Austria	4.9	2.7	+ 2.2	+ 1.8
Poland	5.6	0.1	+ 5.5	+ 5.4
Sweden	6.1	—	+ 6.1	
Canada	8.9	—	+ 8.9	+ 12.1
Czechoslovakia	19.2	0.1	+ 19.1	+ 18.2
Germany	23.9	4.5	+ 19.4	+ 29.8

SOURCE: *World Consumption of Wool 1928-1931*, pp. 20, 299

### C — Woollen and Worsted Tissues

Except for Japan, a large supplier, and the United States, an insignificant one, all of the sixteen manufacturing countries which export woollen and worsted tissues in quantity are to be found in Central and Western Europe. Ordinarily, the United Kingdom is responsible for about half of all these exports, Italy, Germany, France, Poland, Japan, and Czechoslovakia—in that approximate order—are also prominent factors. From Western and Central

Europe, and to a much smaller extent from Japan, woollen and worsted exports stream toward all parts of the world in what is probably the most diversified and evenly distributed of all textile markets. The significant importing countries number over 40, so far as the incomplete data permit them usefully to be arranged in groups, Western and Central Europe is by far the largest market, with the Far East and the British Dominions approximately equal in second place. Other significant markets are found in Latin America, the Balkans and Near Eastern Countries, the United States by itself is not an inconsequential importer of the more expensive varieties.<sup>1</sup>

TABLE 12 — EXPORT AND IMPORT BALANCES, WOOL YARN, MAJOR TRADING COUNTRIES, 1934  
(in million lbs.)

Country	Imports	— Exports	= Trading balance
Total, significant trading countries	112.5	121.2	—
<i>Major net exporters</i>			
United Kingdom	0.7	42.9	— 42.2
France	1.6	30.4	— 28.8
Czechoslovakia	1.6	12.3	— 10.7
Japan	0.9	5.9	— 5.0
Italy	0.3	2.6	— 2.3
<i>Relatively small balance</i>			
Belgium	8.4	8.7	— 0.3
Austria	5.4	3.3	+ 2.1
<i>Major net importers</i>			
Argentina	1.6	—	+ 1.6
Brazil	2.0	—	+ 2.0
Switzerland	4.2	1.9	+ 2.3
Turkey	2.7	—	+ 2.7
India	2.9	—	+ 2.9
Canada	3.3	—	+ 3.3
Greece	3.3	—	+ 3.3
Baltic countries	4.0	—	+ 4.0
Sweden	6.8	0.2	+ 6.6
China	7.1	—	+ 7.1
Rumania	7.3	—	+ 7.3
Germany	17.3	9.6	+ 7.7
Netherlands	14.4	1.0	+ 13.4

SOURCE: *World Consumption of Wool 1928-1935*, pp. 301-302.

<sup>1</sup> Such recent data as are available on the entire international trading market in wool tissues are presented in Volume II. The principal weakness of these data is that, except for Canada, imports into the British Dominions

Figures relating to the exports and imports of wool tissues in 1935 are presented in table 13

TABLE 13 — EXPORTS AND IMPORTS OF WOOL TISSUES, MAJOR TRADING COUNTRIES, 1935

(by volume)			
Exports		Imports	
<i>In million lbs</i>		<i>In million lbs</i>	
United Kingdom	61 3	Canada	8 3
Italy	15 0	Netherlands	6 7
Germany	8 9	Argentina (1934)	5 4
France	5 7	Denmark	5 3
Poland	4 5	China	3 6
Czechoslovakia	4 5	Switzerland	2 8
Belgium	1 4	United States (1934)	2 5
Sweden	0 8	United Kingdom (1934)	2 0
Netherlands	0 6	Germany	1 9
Switzerland	0 6	Belgium	1 3
<i>In million square yards</i>		<i>In millions of yards</i>	
Japan	21 3	India (linear)	8 4
		Irish Free State (square)	7 2
		Japan (square)	4 1

SOURCE *World Consumption of Wool, 1928-1935*, pp 26-27

As in the case of cotton, so also in that of wool, the network of trading relationships differs somewhat for each important exporting and importing country. Thus to judge from the 1934 figures, Canada, the most significant importer, is furnished almost exclusively by the United Kingdom, the leading exporter, at the same time the British Dominions taken together bulk largest in shipments from the United Kingdom. The United States, a final consumption market, is supplied almost entirely by the United Kingdom and France, Belgium and the Netherlands, in contrast, both in part intermediate consumption markets, receive their woollen cloth imports from the United Kingdom, France, Germany, and Czechoslovakia. In India, furnished by almost all major exporters, Japan and the United Kingdom are the most important, while Ceylon and India together take close to half of all exports from Italy. The United Kingdom and Japan would appear to predominate in China, Germany, France and Italy are important

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are not recorded by weight. Nevertheless, examination of comparative values, as well as of the volume of exports from the chief exporting countries, supports the high rank assigned to the Dominions in the present discussion

suppliers to the United Kingdom These and other typical trade patterns for woollen and worsted tissues are presented in table 14

TABLE 14 — WORLD TRADE, WOOLLEN AND WORSTED TISSUES,  
SELECTED COUNTRIES, 1934  
(in million lbs)

Exports to	Exports from						Total imports
	Germany	France	Italy	United Kingdom	Czechoslovakia	Japan (b)	
Germany	—	0.5	(a)	1.2	0.3	(0.2)	2.5
Argentina	(a)	0.9	0.8	3.6	(a)	(0.1)	5.4
Australia	(a)	(a)	(a)	0.9	(a)	(0.1)	
Belgium	0.5	0.8	(a)	1.6	(a)	(a)	3.0
Canada	(a)	0.1	(a)	7.2	(a)	(a)	8.1
China	(a)	0.1	0.7	1.9	(a)	(3.0)	4.7
Denmark	1.0	(a)	(a)	3.6	0.2	(a)	5.7
Egypt	(a)	0.3	0.7	2.1	(a)	(2.8)	2.1(c)
United States	(a)	0.3	(a)	2.1	(a)	(a)	2.5
India	0.3	0.2	8.4(d)	2.4	(a)	(8.4)(d)	(e)
Kwantung, L T	(a)	(a)	(a)	(a)	(a)	(8.3)	
Manchuria	(a)	(a)	(a)	(a)	(a)	(1.6)	3.3
New Zealand	(a)	(a)	(a)	2.4	(a)	(a)	
Netherlands	2.1	(a)		2.4	0.4	(a)	7.0
United Kingdom	1.0	0.5	0.6	—	(a)	(0.1)	2.0
Sweden	0.6	(a)	(a)	(a)	0.2	(0.1)	2.3
Turkey	(a)	(a)	(a)	(a)	0.2	(a)	1.1
Union of South Africa	(a)	(a)	1.4	5.2	(a)	(0.4)	
Other countries	4.4	5.1	5.7	21.1	3.0	(4.7)	21.3(f)
All countries	9.9	8.8	18.3	57.7	4.3	(29.8)	71.0(f)
Imports into India (million linear yards)	0.5	0.5	1.0	4.1	(a)	6.8	13.4

pass the fabrics shipped back and forth among the highly industrialised European countries. Second, comes the movement in woollen goods exported from such manufacturing countries as France, Italy and the United Kingdom to such agricultural countries as Argentina, Canada, and the Union of South Africa. Third, is the trade in woollen tissues destined for the growing markets of China and India and shipped by such centres of industrial activity as Germany, Japan, and the United Kingdom. All things considered, it would appear that the pattern of world trade in woollens and worsteds is shaped in part by the fact that it serves consumers at higher levels of income than does the world trade in cotton tissues. In part it is determined by climatic factors just as climatic conditions direct trade in cotton cloth toward tropical and semi-tropical regions in the main (India, the Netherlands East Indies, the Philippine Islands, Egypt, Colonial Africa, etc.), they place the most important wool and worsted goods markets in countries of cooler climate (Canada, Denmark, Manchuria, the Union of South Africa, Sweden, etc.)

### III — SILK

World trade in silk cocoons is negligible, largely because cocoons are technically difficult to transport and involve such a large proportion of waste that transportation costs are excessive.<sup>1</sup> Policies of self-sufficiency with regard to agricultural raw materials also play a part in this connection, while particularly in Japan sericulture is regarded as of more than usual importance in the agricultural economy.<sup>2</sup> In any event the countries manufacturing raw silk all aim, some with more success than others, at providing domestically their own raw materials. In the small world trade in cocoons,<sup>3</sup> China, Korea, and to a less extent Iran are the only regular exporters in appreciable quantity, the bulk of such shipments from China and Korea go to Japan, where they are reeled into raw silk, chiefly for the export trade.<sup>4</sup>

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Raw silk—the basic semi-manufacture of the silk textile industry—and silk waste (also an important semi-manufacture), enter into world trade on a large scale. Although the international structure of raw silk trading is extensive, it is also relatively simple. As shown in Chapter IV, about three-quarters of the world trade shipments of raw silk come from Japan, most of the remainder from China and Manchuria.<sup>1</sup>

As also shown in Chapter IV, from 70 to 75 per cent of all raw silk exports are taken by the United States, France, Japan, the

TABLE 15 — WORLD TRADE IN RAW SILK, MAJOR TRADING COUNTRIES, 1935  
(in million lbs.)

Exports to	Exports from					Total retained imports
	Japan	China (a)	Manchuria (b)	Korea	Italy (c)	
United States	61.71	3.20	—	—	0.20	67.67
France	4.60	3.19	—	—	0.42	8.28
United Kingdom	3.76	0.34	—	—	0.20	4.03
India	1.80	1.37	—	—	—	3.06
Australia	0.67	—	—	—	—	—
Switzerland	0.05	—	—	—	0.43	0.59
Germany	—	—	—	—	1.15	2.44
Japan	—	0.26	2.55	4.92	—	5.16
China	—	—	0.47	—	—	—
Others	0.58	1.81	—	—	0.89	4.39 (d)
Total	73.17	10.17	3.02	4.92	3.29	95.62 (e)
<i>Percentage distribution</i>						
United States	84	31	—	—	6	71
France	6	31	—	—	15	9
Japan	—	3	84	100	—	5

(a) Includes some wild silk

(b) Chiefly wild silk

(c) 1 January to 30 September 1935

(d) Includes Austria, Canada, Italy

(e) Above countries only

Source: *Industrial Fibres*, 1936, pp. 52 and 56

United Kingdom, India, Canada and Germany, in approximately that order, are the major constituent elements in the remainder of the market <sup>1</sup> Table 15 pictures the existing network of world trade

It is seen again from table 15 that world trade in raw silk consists almost entirely in a flow from reeling establishments in Japan to throwing and weaving mills in the United States. A secondary stream involves Japan and China as sellers, and France, the United Kingdom and India as buyers. The minor currents bring together Japan as an importer from Korea, Manchuria and China, Italy as an exporter to Germany, France and Switzerland.

TABLE 16 — WORLD TRADE IN SILK WASTES, MAJOR TRADING COUNTRIES, 1935  
(in million lbs.)

Exports to	Exports from				Total retained imports (c)
	China	Italy (a)	Japan	India (b)	
Japan	3 71	—	—	—	10 83 (a)
Italy	2 31	—	0 41	0 39	
United States	2 23	0 35	0 15	—	4 69
France	2 23	0 87	0 24	0 17	4 63
United Kingdom	1 44	0 66	0 04	0 09	1 89
Germany	—	0 91	—	0 01	0 70
Others	0 79	0 95	0 85	—	1 44 (d)
Total	12 71	3 74	1 69	0 66	24 18 (e)
Percentage distribution					
Italy	18	—	24	59	
United States	18	9	9	—	
France	18	23	14	26	

(a) 1934

(b) Fiscal year ending 31 March 1935

(c) Includes small amounts of cocoons

(d) Switzerland only

(e) Above countries only

SOURCES: *Industrial Fibres*, 1936, pp. 53, 57, and *Statistique Mensuelle du Commerce Extérieur de la France*, Dec. 1935, p. 62.

International trade in silk wastes is dominated on the export side by China, which usually furnishes 50 per cent or more of the total,

<sup>1</sup> The percentage given for the United States represents the average for the period 1928-1935 inclusive. In addition to the six other significant importers given in the text, Italy, Switzerland and Austria also import small amounts (*Ibid.*, p. 56).



Manchuria, shipping almost half of China's volume, and Italy supplying about a third, are next in importance<sup>1</sup> On the import side, similarly, Italy is predominant, ordinarily taking a good third of all retained imports, France and the United States follow well behind Italy<sup>2</sup> Table 16 summarises the pattern of this commerce

No convenient international summaries, on the basis of which world trade in silk tissues might be fully described, appear to be available It is known, however, that Italy, France, Switzerland, and Japan are all important factors on the export side of world trade Analysis of trade data for these countries will therefore throw some light on the problem, such data are summarised in table 17 below

From the fragmentary data assembled in table 17, it would appear that the United Kingdom is the principal final consumption market for the silk tissues exported by France, Italy, Japan, and Switzerland taken together, although the exact importance of that country as a final consumer would be hard to define The United States and India apparently follow the United Kingdom, in each of these countries almost all of the imports are probably for final consumption Argentina, Australia, and the Union of South Africa are other important consumption markets As regards Germany, Belgium, the Netherlands, and Switzerland, the considerable exports of silk tissues to these countries probably represent in large measure the passage of products destined for improvement and re-export, the export data for Switzerland are suggestive on this point It would be hazardous, in view of the incompleteness and incomparability of the figures given in the table, to attempt to assign definite ranking to the export countries, in fact other countries, such as the United Kingdom, Germany, the United States, and China are all known to export silk tissues in appreciable quantity It is nevertheless clear that international markets for silk fabrics are largely dominated by France and Japan

#### IV — RAYON YARN AND MANUFACTURES

Rayon yarn, as shown in Chapter IV, is produced in some twenty countries, most of the production, however, is retained

for domestic use, less than one-fifth of the output finding its way into world trade<sup>1</sup> Among the thirteen countries, more or less, which export in quantity, Italy is by far the most important,

TABLE 17 — WORLD TRADE IN SILK TISSUES, SELECTED COUNTRIES, 1935  
(in millions of French francs)

Exports to	Exports from				
	France (b)	Italy (c)	Japan	Switzerland	
				Total	Improvement trade
Germany	3 7	1 0	3 9	57 5	54 5
Argentina	20 5	1 3	5 6	1 5	(a)
Australia	10 9	(a)	28 8	1 5	(a)
Austria	6 0	0 7	(a)	2 5	0 5
Belgium	36 7	0 7	(a)	(a)	(a)
Egypt	9 6	2 0	11 2	(a)	(a)
United States	57 7	3 4	29 2	2 5	(a)
France	—	4 9	7 3	6 0	2 0
French colonies	65 5	(a)	(a)	(a)	(a)
India	1 8	0 1	77 8	(a)	(a)
Netherlands Indies	1 6	1 0	6 0	(a)	(a)
Italy	17 4	—	(a)	9 0	9 0
Netherlands	30 5	(a)	7 3 (d)	(a)	(a)
United Kingdom	168 3	11 0	52 0	27 5	3 0
Sweden	4 1	(a)	(a)	3 0	0 5
Switzerland	22 6	4 1	(a)	—	—
Union of South Africa	4 2	(a)	17 2	(a)	(a)
Other countries	41 9	(a)	86 5	20 0	6 5
All countries	503 0	30 2 (e)	332 8	131 0	76 0

(a) Not listed separately, nil or (except for Italian exports) included in "other countries"

accounting for from one-fourth to one-third of the total. Japan, the Netherlands, and France are also substantial exporters, together they ship an additional 40 per cent of all exports. The United Kingdom, Germany, Belgium, and Switzerland are likewise substantial exporters.<sup>1</sup>

On the importing side, almost all textile manufacturing countries figure more or less prominently.

Rayon yarn is imported by a number of countries which possess no rayon spinning equipment of their own, but which do possess looms or hosiery machinery. British India and China are the most important of these. On the other hand many of the countries which produce large amounts of rayon are also importers. Germany was until 1935 the largest world importer, and despite heavy exports, continues to show a considerable import balance in rayon.<sup>2</sup>

TABLE 18 — WORLD TRADE IN RAYON YARN, PRINCIPAL TRADING COUNTRIES, 1935  
(in millions lbs.)

Exports to	Exports from						Total (f) imports
	Italy(a)	Japan	Netherlands(b)	France	Germany(c)	United Kingdom	
India	5.7	10.1	1.5	(d)	(e)	0.1	15.9
Germany	0.9	0.1	6.6	1.7	—	0.1	13.2
Hungary	4.8	(e)	0.1	(c)	2.6	(d)	5.2
China	3.4	3.2	1.8	(d)	(d)	(d)	8.5
Australia	1.0	1.5	0.8	(e)	(d)	2.6	6.3
Argentina	1.6	(e)	0.7	2.6	0.3	0.5	7.6
Spain	2.4	(e)	1.7	0.9	0.8	0.2	9.4
Czechoslovakia	1.0	(e)	0.8	(e)	1.3	0.1	9.0
Switzerland	2.9	(e)	0.7	2.8	0.6*	0.1	4.1
Mexico	1.3	2.4	0.3	0.3	0.1	0.2	8.1
United Kingdom	1.3	(e)	(d)	1.7	(e)	—	2.4
Belgium	1.0	(e)	1.0	(d)	0.1	(d)	2.6
Austria	1.6	(e)	0.9	(e)	0.6	(d)	3.3
Other countries	19.0	13.1	5.3	5.2	6.1	5.6	47.0
Total	47.9	30.4	22.2	15.2	12.5	9.8	112.8(g)

(a) 1934. Total exports for 1935 estimated at 46.0 million lbs.

(b) 1934. Total exports for 1935 were 21.0 million lbs.

(c) Includes improvement trade (2.9 million lbs.).

(d) Less than 50,000 lbs.

(e) Included in "other countries" or nil.

(f) Partly excluding improvement trade.

(g) 37 countries.

Source: *Industrial Fibres*, 1936, pp. 100, 101.

<sup>1</sup> Austria, the United States, Czechoslovakia, Poland, and Hungary also export rayon yarn in quantity (*Ibid.* p. 98).

<sup>2</sup> *Ibid.*, p. 100.

Exports of the semi-manufacture thus pass in large quantities, for the most part from more highly to less highly industrialised countries, and for the rest between and among countries of equal degree of industrialisation. In short, world trade in rayon yarn is as widespread, as diversified and as complex as the whole range of textile manufacturing <sup>1</sup>. This is shown in table 18.

Incomplete data on world trade in pure rayon piece goods and in rayon mixtures strongly indicate that Japan is overwhelmingly predominant as an exporter. Although France, Italy, Germany and the United Kingdom, among others, are also substantial exporters, it would appear that Japan's shipments are not far from double the combined exports of these four and the four other countries for which statistics have been assembled. The available data are presented in table 19.

TABLE 19 — EXPORTS OF RAYON PIECE GOODS AND RAYON MIXTURE  
PIECE GOODS, SELECTED COUNTRIES, 1935

Country	Rayon piece goods	Rayon mixture piece goods	Total
	<i>Thousand square yards</i>		
Japan	424,193 (a)	—	424,193
United Kingdom	14,945	36,750	51,695
United States	6,049	1,547	7,596
	<i>Quintals</i>		
Italy (1934)	24,129	22,265	46,394
France	29,391 (a)	—	29,391
Germany	19,112	6,168	25,280
Czechoslovakia	5,620		5,620 (b)
Switzerland	1,999	323	2,322
Netherlands	620	460	1,080

of which India, the Netherlands Indies, and China were the chief consumers. The second most important market was Australia, followed by Latin America, Colonial Africa, Egypt, and the Union of South Africa in that order<sup>1</sup>. In the export outlets of the United Kingdom, in 1934, the British Dominions were by far the most important, taking half of the total. Other significant destinations were India, Argentina, the Netherlands, and British West Africa<sup>2</sup>. From Italy, almost half of 1934 exports went to Western and Central Europe, India, Egypt, Latin America, and the United States also took appreciable proportions<sup>3</sup>. In sum, rayon piece goods, and fabrics embodying rayon in mixture with other fibres, go substantially to the same markets as do cotton piece goods.

TABLE 20 — WORLD TRADE IN FLAX AND TOW CHILL TRADING COUNTRIES, 1935  
(in thousand tons)

Exports to	Exports from						Total net United Kingdom imports
	USSR	Belgium	Poland	Lithuania	Italy	Netherlands	
United Kingdom	21.5	16.4	0.1	9.9	2.6	2.0	56
Belgium	8.6	—	1.8	1.4	2.5	2.9	19(b)
Germany	15.5	2.5	0.2	(a)	1.7	1.0	19
France	8.2	15.6	0.3	1.4	0.2	0.2	29
Czechoslovakia	—	—	6.4	2.0	0.5	0.2	15
United States	1.7	1.3	—	—	—	0.1	5
Italy	1.4	—	—	—	—	(a)	3(c)
Other countries	1.2	1.7	3.1	1.4	0.5	0.5	13(d)
Total	58.1	37.5	11.9	10.1	8.0	6.9	159(e)
Percentage distribution							
United Kingdom	37	44	1	39	33	29	35
Germany	27	7	2	—	21	14	12
France	14	42	3	14	3	3	18

(a) Less than 500 tons

(b) Gross exports 37, net export balance 18

(c) 1934

(d) Japan 11, Sweden 2

(e) Above countries only

Source: *Industrial Fibres*, 1936, pp. 66, 68, 69

<sup>1</sup> *Cotton Trade Statistics*, 1936, table 185

<sup>2</sup> *Ibid*, table 182

<sup>3</sup> *Ibid*, table 193

## V — FLAX AND LINEN

As was seen in Chapter III, the U S S R predominates in flax production, Belgian exports, however, attain a volume not much less than the shipments from the U S S R Poland, Lithuania, Latvia, and the Netherlands likewise figure prominently More than half of all flax exports go to the United Kingdom, France, Germany, Czechoslovakia, and Japan are other leading markets Outside of the Soviet Union and the Baltic States, none of the linen manufacturing countries approaches self-sufficiency in the raw material The characteristic patterns of recent world trade in the fibre are shown in table 20

The distributions shown in the table become more meaningful when it is realised that " the bulk of the raw material requirements of the Belfast (linen manufacturing) industry is met by imports, chiefly from the Soviet Union ", while " Belgium supplies high-grade flax for the fine-quality light-weight linen fabrics forming an important section " of that industry <sup>1</sup> Moreover

the trade in flax between France and Belgium is largely complementary Large quantities of flax grown on the French side of the frontier are scutched in Belgium to be eventually returned to France Flax grown in the Netherlands is also sent to Belgium, but the fibre is not returned to the country of origin <sup>2</sup>

International compilations which would permit a description of world trade in linen manufactures seem unavailable It is known, however, that the United Kingdom is by far the leading supplier to world markets, that Belgium and Czechoslovakia form a second group of exporters, with the U S S R not far behind, while Germany, France and Italy make up a minor group Confirmation for these statements is found in the trade returns of the United States, the largest linen importing market in the world <sup>3</sup>

The dominant rôle of the United States linen piece-goods market appears clearly from the trade returns of the United Kingdom Thus in 1935 the United States alone took over 40 per cent of the yardage shipped from the United Kingdom The British Dominions came next, absorbing a quarter of the shipments, with Australia the leading single market Aside from substantial exports to China,

<sup>1</sup> *Industrial Fibres*, 1936, p 68

<sup>2</sup> *Ibid*, p 67

<sup>3</sup> See, for example, *Foreign Commerce and Navigation of the United States*, 1934, Vol I, " Imports for Consumption ", pp 106 107

the remaining British goods were diversified as to destination, with the Scandinavian countries, Brazil, Cuba, New Zealand, Madeira and Argentina figuring prominently <sup>1</sup>

On the limited basis of the trade returns of the dominant exporting and importing countries, certain provisional generalisations may be permissible. International commerce in linen manufactures consists largely of a current of commodities from Europe (mainly the United Kingdom) toward the United States. The minor currents involved carry almost exclusively goods from Belgium, Czechoslovakia, the United Kingdom, and the U S S R, to markets in all parts of the world.

## VI — JUTE

The structure of world trade in jute is less complex than that of any other textile raw material. To begin with, virtually all exports originate in India <sup>2</sup>. These exports are destined in overwhelming proportion for advanced industrial countries, such as Germany, the United States, and the United Kingdom. The distribution of exports of jute in 1935 is shown in table 21.

TABLE 21 — DISTRIBUTION OF EXPORTS OF RAW JUTE FROM  
INDIA, 1935

(in percentage of total volume)

Country	Percentage	Cumulative percentage
United Kingdom	21	21
Germany	21	42
France	10	52
United States	9	61
Italy	9	70
Belgium	7	77
Spain	7	84
Japan	3	87
Brazil	2	89
Netherlands	2	91
China	1	92
Argentina	1	93
Other countries	7	100
All countries	100	

SOURCE: *Industrial Fibres*, 1936, p. 74

<sup>1</sup> *Annual Statements of the Trade of the United Kingdom*, 1935, Vol. III, pp. 294-295.

<sup>2</sup> China and Manchuria also export small quantities, while the small exports of Nepal go entirely to India (*Industrial Fibres*, 1936, p. 75).

To determine roughly the outlines of world trade in the semi-manufactures and manufactures of jute, it will suffice to consider the trade returns of the two most important exporting countries, India and the United Kingdom. As regards yarn, the statistics of the United Kingdom show that Brazil is by far her most important market for jute yarn, the Netherlands, Canada, Denmark and Portugal likewise take significant amounts<sup>1</sup>. Similarly, the Indian statistics for recent years show that an overwhelming proportion of exports of jute twist and yarn from India are purchased by Argentina, while important proportions are also destined for Portuguese East Africa, the Union of South Africa, Uruguay, Peru, and the Straits Settlements<sup>2</sup>. It is noteworthy that the countries importing raw jute, presumably for spinning and weaving, should be chiefly those of advanced industrialism, while agricultural countries should be the principal importers of jute yarn, presumably for weaving alone.

More than half of the jute piece goods exported by the United Kingdom go to the United States. Other major destinations, in the order of their importance in 1935, are Argentina, Canada, Denmark, Australia, and the Irish Free State. The five leading markets for the shipments of jute sacks and bags from the United Kingdom, to judge likewise by the 1935 data, are the Netherlands, Irish Free State, Belgium, Sweden, and Chile<sup>3</sup>. India's exports of gunny bags and gunny cloth, both sacking and hessian, may also be considered. The leading market for gunny bags, on the basis of recent returns, is Australia, with the United Kingdom a good distance behind. Other major importers from India are Hong Kong, Egypt, Hawaii, the Union of South Africa, the Straits Settlements, Cuba, Chile, Siam, Java, and Portuguese East Africa. Considerably more than half of the yardage of Indian gunny cloth goes to the United States, Argentina, Canada, and the United Kingdom also buy important proportions, the remainder is distributed among many countries, of which Australia, the Philippine Islands, Egypt, Uruguay and Norway are the most important<sup>4</sup>.

To generalise from the returns of the United Kingdom and India,

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fully-manufactured jute goods find extensive markets in both industrial and agricultural countries. Among the industrial countries, the United States and the United Kingdom predominate as importers, among agricultural countries, the leading consumers are Australia, Argentina, and Canada.

## VII — SUMMARY

The international trade in textiles examined in the present chapter, despite many specific and complex features, shows certain uniform tendencies.

In so far as textile raw materials are concerned, the larger proportion of exports flows from the countries of great natural resources—India, the United States, Canada, Argentina, the Union of South Africa, the U S S R, etc—to countries of limited resources—the United Kingdom, Japan, Germany, Italy, Belgium, France, etc. Nevertheless, the distribution of textile natural resources is highly specific. Japan, for example, though an importer of all her cotton, is a country of large resources as regards silk, the United States, the world's largest source of cotton, is a land of limited resources as regards silk, flax and jute.

With regard to textile semi-manufactures, three major types of international trade may be distinguished. First, export surpluses (of cotton yarn, wool yarn, jute yarn, etc.) pass from countries where spinning is relatively more developed to countries where it is relatively less developed. Such is the character of the movements of yarn from Europe to Latin America, from Western Europe to the Balkans, etc. Second, manufacturing countries, enjoying natural or technical advantages (e.g. Japan in the reeling of raw silk, the United Kingdom in the spinning of the highest cotton yarn counts) export to other manufacturing countries. Third, semi-finished textile manufactures of all kinds pass and repass national frontiers in the improvement trade for re-export and re-import.

The trade in finished textile goods consists in large measure in the movement of manufactured commodities from regions and countries of more intensive to regions and countries of less intensive industrialism. This is notably true of cotton goods, substantially true of woollen goods, and to a considerable degree also of jute. Another large part of international commerce in finished textile manufactures consists in the movement of the specialities of one industrial country to the final consumption markets of other industrial countries. Examples in point are the exports of silk tissues from

Japan, France, Italy and Switzerland to the United Kingdom and the United States, and of linen manufactures from the United Kingdom, Belgium, Czechoslovakia and the U S S R to the United States To a considerable extent, also, world trade in all finished textile manufactures consists in the transfer back and forth among manufacturing countries of goods destined for, or having undergone improvement Complementary trade of this kind reaches its maximum between and among the textile manufacturing countries of Western and Central Europe

The great bulk of all manufactured textile exports originates in the mills of Central and Western Europe This is true both of semi-finished and of finished manufactures, Europe's leadership is greatest, however, in semi-finished goods Nevertheless at least two other regions are an important factor on the export side of the textile trade the Far East and India enjoy a generous share of world commerce in the manufactures of cotton, silk, rayon and jute

Taking manufactured textile imports as a whole, the great bulk passes into intermediate or final consumption in Central and Western Europe The dominance of this area is greater, however, as a market of intermediate than of final consumption For certain classes of textile manufactures, however, Central and Western Europe are not the largest markets The outstanding case is that of cotton piece goods for final consumption, which gravitate for the most part toward the Far East, India, Colonial Africa, and Latin America For imports of woollen and worsted piece goods, moreover, the British Dominions are as important a market as Europe So far as jute manufactures are concerned, the flow is not only to Europe, but in even larger measure to the great industrial and agricultural countries of other continents In linen goods and in raw silk, the United States is the country to which the bulk of exports is directed

In sum, the interlacings of the world textile trade bind together all countries and regions industrial with agricultural, industrial with industrial, agricultural with agricultural A disturbance of the economic and social equilibrium in any part of this interdependent system must inevitably be transmitted to all other parts, the competitive forces operating within any country or group of countries must sooner or later react upon all countries and groups of countries The equilibrium in world textile manufacturing and trade has in recent years in fact not been stable The chief structural changes within the world textile industry and the problems resulting from these changes constitute the subject-matter of Chapter VI

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## CHAPTER VI

### CHANGING PATTERNS OF TEXTILE PRODUCTION AND TRADE

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The economic and social problems which have afflicted the textile industry during recent years are attributable to the interaction of business cycle influences with long-run forces making for basic changes in textile production and trade. Many of the more acute problems facing the world textile industry at the depths of the recent economic crisis were due in large measure to the impact of the cyclical downswing. To examine the play of cyclical forces upon the world textile industry from 1925 to 1935 lies outside the scope of this Report. Certain broad generalisations may, however, be indicated here.

First, textile manufacturing as a whole, while sensitive to cyclical forces between 1925 and 1935, rose and fell much less sharply than did all manufacturing.<sup>1</sup> Second, the raw materials and products of the several textile fibres responded with varying sensitivity to the impact of the business cycle during the period under review. Output of the industrial fibres, for example, fell much more than did that of the fibres supplying chiefly personal consumption uses, while world trade in textile semi-manufactures contracted less in quantum during the crisis than did world trade in the fully-finished manufactures.<sup>2</sup> Third, as among the various textile manufacturing processes, spinning activity was curtailed much less than weaving activity. This was largely owing to a relatively sustained volume of yarn exports and to a continuing demand for knitting yarn.

While the cyclical factors must be kept in mind, the present chapter is concerned primarily with the long-run forces operating

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<sup>1</sup> See the world production and activity indices in LEAGUE OF NATIONS *World Production and Prices 1935/36*, Appendix I, table 2, and Appendix II, table 1.

<sup>2</sup> See GERMANY *Statistisches Jahrbuch*, 1936, "Internationale Uebersichten" p. 145.

to modify fundamentally the international structure of textile production and trade. These factors of structural change, which are rooted in industrial shifts and in changing habits of consumption, are certainly not an entirely new phenomenon, but they have become accentuated and complicated during the past decade, by monetary policies, efforts towards national self-sufficiency, etc

## 1 — CHANGES IN PRODUCTION

The principal changes operating in recent years to modify fundamentally the international localisation of textile manufacturing will be considered first. The several fibres will, so far as convenient and possible, be treated separately.

### A — *Cotton Textile Manufacturing*

The major problems of structural change impinging upon cotton textile manufacturing may be stated briefly as follows: first, while the productive importance of the United Kingdom has been diminishing, that of Japan and India has been increasing. Second, cotton textile manufacturing capacity has been developing rapidly in "newly industrialising" areas, notably China, Latin America, and the Balkan countries. Third, within the internal economy of two of the largest textile manufacturing countries—India and the United States—capacity has been shifting from regions of higher to regions of lower labour costs. Fourth, cotton manufacturing in several European countries has been subjected to a more or less permanent marketing disequilibrium, as a consequence of the new national boundaries carved out after the World War. Fifth, difficulties in obtaining raw materials resulting from policies of foreign exchange control and of bilateral trade agreements have stimulated peculiar structural problems for cotton textile manufacturing in such countries as Germany and Italy.

#### 1 — *Changes in Productive Capacity in India, Japan and the United Kingdom*

Whichever criterion of measurement is employed, a prolonged movement can be discerned of capacity to manufacture cotton textiles from the United Kingdom in the direction of Japan and India. In subsequent sections of this chapter, the trading relationships among the United Kingdom, Japan and India which primarily

underlie this movement will be considered. But anticipating the discussion, it is expedient to indicate here three principal features. First, the United Kingdom's decline from its former status as the 'workshop of the world', in so far as cotton piece goods are concerned, is closely related to the downward trend of her exports to India. Second, Japan's continuing rise to the status of what might be called the "workshop of the Far East" in cotton textiles is in part due to her success in obtaining a larger proportional share of the Indian market, although this is only one phase of a much larger process of expansion in which Colonial Africa, the Netherlands Indies, Latin America, etc., also figure. Third, the continued growth of cotton textile manufacturing in India has accelerated the decline of the United Kingdom's and retarded the advance of Japan's cotton textile manufacturing capacity.

All the relevant indices testify to the progressive loss by the United Kingdom of the dominance it once held in world cotton textile manufacturing, and to the increasing importance of India and Japan. This tendency is clearly shown by the figures of mill consumption of raw cotton between 1909 and 1936 as presented in table 1.

TABLE 1 — MILL CONSUMPTION OF RAW COTTON, INDIA,  
JAPAN, AND THE UNITED KINGDOM  
(in percentages of world total)

	1909-1913 (a)	1918-1929 (b)	1933-1936 (b)
India	10.2	7.7	9.7
Japan	6.6	10.7	13.0
United Kingdom	19.0	10.8	10.6

(a) Average for the five-year period

(b) Year ending 31 July. In computing world total, 1914-1915 figures used for Germany and Italy, for which later figures are unavailable.

SOURCES: 1915-1916 figures from Table 1, Chapter IV. Other figures from A. SEAR, *Die Lage der englischen Baumwollindustrie*, Zurich, 1936, p. 61, quoting Slater and Ashurst Statistical Service.

The same tendency is shown by the statistics of cotton spindles and looms. In 1913, 38.8 per cent of the world's cotton spindles were held by the United Kingdom, India held 4.2 per cent and Japan 1.6 per cent. By 1929, the United Kingdom's share of world cotton spindles had declined to 34.2 per cent, that of India had risen to 5.3 per cent and that of Japan to 4.0. By 31 July 1936, the United Kingdom's share of the world's cotton spindles had

declined still further to 27·3 per cent, that of Japan had risen to 7·2 per cent and that of India to 6·4 per cent<sup>1</sup>

As regards cotton power looms, the United Kingdom in 1913-1914 had 28·7 per cent of all such looms, India only 3·4 per cent and Japan 0·7 per cent. By 1928-1929, the United Kingdom's percentage of world looms had declined to 23·8, that of India rising to 5·3 and that of Japan to 2·6<sup>2</sup>. On 31 July 1934, the United Kingdom's proportion of the world's cotton power looms was down to 18·8 per cent, while Japan's proportion was up to 8·8 per cent and India's to 6·1 per cent<sup>3</sup>.

Clearly, Japan and India have been catching up with the United Kingdom in capacity to produce cotton yarn and piece goods. As shown in Chapter IV, however, the productive capacity of both Japan and India consists largely in the ability to manufacture cotton yarn and goods in medium or low grades. So far as the finest counts and grades of cotton yarns and fabrics are concerned, the United Kingdom is still the undisputed leader of the world, although both in India and Japan average yarn count has been rising and average cloth construction improving. At the same time the average output of cotton cloth by Lancashire mills has been showing a distinct tendency in recent years to become heavier and coarser<sup>4</sup>.

As among the three countries concerned, not only relative but absolute productive capacities have been changing profoundly. Table 2 presents the number of spinning spindles in the United Kingdom, Japan and India at three selected dates.

The tremendous and continuing increase in the number of spindles in Japan commands attention. It indicates that the forces which are transforming Japan into the world's leading exporter of cotton textiles have been operating for nearly a quarter of a century. The very slight increase in the spindlage of the United Kingdom between 1913 and 1929 indicates clearly that the influences

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<sup>1</sup> A. SPALTY *Die Lage der englischen Baumwollindustrie*, Zurich, 1936 p. 58, *International*

TABLE 2 — NUMBER OF SPINNING SPINDLES IN PLACE,  
UNITED KINGDOM, JAPAN AND INDIA, 1913 TO 1936

(in thousands)

Country	1913	1929	1936	Change 1913-1936	
				In thousands	Percentage
United Kingdom	55,652	55,917	41,391	- 14,261	- 25.6
Japan	2,300	6,530	10,867	+ 8,567	+ 372.5
India	6,084	8,704	9,705	+ 3,621	+ 59.5

SOURCES — SPAIN: *Die Lage der englischen Baumwollindustrie* 1936 p. 18, quoting  
Slater, Lancashire Statistical Service. *International Cotton Bulletin* Oct. 1936, p. 150

which once established Lancashire as the centre of world cotton textiles had by then already ceased to operate. The growth of Indian spindlage was quite rapid from 1913 to 1929—suggesting the great impulse given to the development of cotton manufacturing in that country during the World War. In table 3 the absolute weaving capacities of the United Kingdom, Japan and India are presented for three significant dates.

TABLE 3 — NUMBER OF COTTON POWER LOOMS,  
UNITED KINGDOM, JAPAN AND INDIA, 1913 TO 1934

(in thousands)

Country	1913-1914	1928-1929	1933-1934	Change, 1913-1934	
				In thousands	Percentage
United Kingdom	805.5	739.9	588.0	- 217.5	- 27.0
Japan	20.6	82.7	277.3	+ 256.7	+ 1,246.1
India	94.1	166.5	189.7	+ 95.6	+ 101.6

SOURCES — SPAIN: *Op. cit.* p. 64. *International Cotton Bulletin* July 1934, pp. 538-539

These changes in absolute weaving capacity correspond to the changes already noted in absolute spinning capacity. Japanese looms show an increase for the twenty-year period at an extraordinary rate. Looms in the United Kingdom show a continued decline, accelerated after 1929. Indian looms rise very rapidly from 1913 to 1929 and less rapidly thereafter.

The general trends are even more strikingly shown by existing data on the production of cotton manufactures in the three countries concerned. The relevant figures are summarised in table 4

TABLE 4 — PRODUCTION OF COTTON YARN AND PIECE GOODS,  
UNITED KINGDOM, JAPAN AND INDIA, 1912-1935

	1912	1924	1930	1935
<i>Yarn</i> (million lbs)				
United Kingdom	1,983	1,395	1,047	1,225
Japan	661	829	1,010	1,424
India	683 (a)	647	861	1,040
<i>Piece goods</i>				
United Kingdom Million sq yds	8,050 (b)	6,026	3,399	3,354
Japan Million sq yds		2,965 (c)	3,159	4,908
" Yarn consumed, million lbs	(392)	(922) (c)		
India, mill production				
In million linear yards		1,841	2,494	3,555
In million lbs	(274) (a)	(430)		

(a) 1912-1914

(b) Million linear yards

(c) 1926

SOURCES — *Cotton Trade Statistics*, 1933, table 97, and 1936, tables 74, 77, 97, 98, A. S. PEARSE *Japan and China Cotton Industry Report*, Manchester, 1929, p. 126, INDIAN CUSTOMS BOARD *Report on the Cotton Textile Industry Enquiry*, 1927, Calcutta, 1927, p. 5

As the table shows, the production of both cotton yarn and piece goods declined considerably in the United Kingdom between 1912 and 1935, the output of piece goods falling further than that of yarn. The fact of such marked decline in both categories is of fundamental importance, it drives home the contraction of textile manufacturing in the United Kingdom since the World War. Nevertheless the divergence in the two rates of decline is also significant, for it may be construed in part as showing that the United Kingdom has held on to its export markets for yarn more firmly than to its export markets for piece goods. Other factors which explain the divergence are the growth of demand for yarn by home knitting mills as well as increased average weight of cotton cloth woven.

The very large increase in Japan's production both of yarn and of piece goods is also notable. In the case of Japan, by far the more astonishing rate of increase is shown by piece goods, just as the chief thrust of Japan has been into export markets for finished cloth, rather than for semi-manufactures. In India the output both of cotton yarn and piece goods has been rising steadily since 1912, piece goods at a much more rapid rate. The continuing rise



in both rates suggests that while Indian weaving is becoming increasingly more capable of satisfying domestic demands for cloth, Indian spinning is maintaining its capacity to furnish domestic supplies of yarn <sup>1</sup>

## 2 — China, Brazil and other "New Textile Countries"

The most fundamental and widespread structural change in textile manufacturing, namely, the diffusion of machine technology from old centres of industrialisation to newly industrialised areas, is exemplified also by developments in China, Brazil, the Balkan countries, and elsewhere

In few countries undergoing industrialisation has cotton manufacturing advanced more rapidly than in China. A country which, some years ago, was one of the great world import markets for cotton piece goods and later for yarns, China is to-day rapidly approaching self-sufficiency in both. Table 5 presents the increase of cotton manufacturing equipment in China from 1890 to 1936

TABLE 5 — COTTON SPINDLES AND LOOMS IN CHINA, 1890-1936

Year	Spindles		Looms	
	(in thous ands)	(1913 = 100)	(in thous ands)	(1913 = 100)
1890	114.7	11.7	4.6	17.2
1900	638.0	64.9	8.9	94.5
1913	982.8	100.0	9.4	100.0
1920	2,052.6	208.9	17.0	181.0
1928	4,115.3	418.7	29.3	311.8
1934	4,680.0	476.2	44.0	468.1
1936	5,010.0	509.8		

SOURCES — H. D. FONG *Cotton Industry and Trade in China* 1932 Vol. 1, p. 8. UNITED STATES TARIFF COMMISSION *Cotton Cloth Report*, 1936, p. 143, and *International Cotton Bulletin*, Oct. 1936

Although the phenomenal early rate of increase has since slowed down, continued rapid expansion of spindle and loom capacity has characterised cotton manufacturing in China from 1920 down to the present. Furthermore, spinning and weaving capacity have increased in close parallelism, with the result that China has become progressively independent of both foreign yarns and piece goods. In fact, China now exports appreciable "surpluses" of cotton yarn to India <sup>2</sup>

Latin America and the Balkan-Near Eastern countries are two other outstanding regions of "new industrialism" in textiles. To be sure, cotton manufacturing on a large scale is not, for Latin America, the altogether new industry it is sometimes supposed to be. Both Brazil and Mexico had fairly well-established cotton textile industries before the World War. Nevertheless, the industry expanded remarkably both in Brazil and Mexico between 1913 and 1929 as is shown in table 6.

TABLE 6 — GROWTH OF COTTON MANUFACTURING IN BRAZIL AND MEXICO, 1913-1929

	Spindles in place (thousands)		Looms in place (thousands)		Mill consumption of raw cotton (thousand bales)	
	1913	1929	1913-1914	1928-1929	1909-1913	1928-1929
Brazil	1,200	2,750	50	79	168	472
Mexico	700	751	27	30	43	161

SOURCE — SPALTY *Die Lage der englischen Baumwollindustrie*, 1936, pp. 58, 61, 64.

In both Brazil and Mexico the main conditioning factors have been much the same: a home market sheltered by commercial policy, and self-sufficiency in raw material. Among other Latin-American countries in which cotton manufacturing has been expanding rapidly of late are Argentina, Bolivia, and Peru.<sup>1</sup>

Among the Balkan and Near Eastern countries where cotton manufacturing is now in process of development, Rumania, Yugoslavia, Bulgaria, Greece, and Turkey are all significant. In these countries, cotton manufacturing is dependent almost exclusively on sales in the sheltered home market. On the other hand, the only appreciable raw cotton producer in the group is Turkey. Data suggesting the growth of the industry in Latin America, the Balkan countries, and the Near East are given in table 7.

The data on spindles and looms in place, by omitting to give weight to extent of mechanization and degree of effective use, necessarily understate the true rates of growth or decline for cotton manufacturing in all countries. As regards certain Balkan countries

<sup>1</sup> It would appear that in many Latin-American countries imports of second-hand textile machinery from the United States have been an important factor. Limitations of time in preparing this Report have prevented the Office from gathering precise data on this point. For new machinery in Latin America, as practically everywhere else, the United Kingdom is the chief supplier. Data on exports and imports of textile machinery up to 1940 may be consulted in II GRUNBAU *Die Welttextilkrise*, 1931, pp. 48-51. The statistical material there presented is included in Volume II.

since 1929, more satisfactory measurements which unequivocally reveal rapid structural growth are the indices of activity in cotton spinning and weaving given in Volume II

TABLE 7 — COTTON TEXTILE MANUFACTURING IN LATIN-AMERICAN, BALKAN, AND NEAR EASTERN COUNTRIES, 1931-1936

	Spindles in place (thousands)		Looms in place (thousands)	
	1932 (a)	1936 (b)	1931 (c)	1934 (c)
All countries	161,002	153,130	3,158.8	3,130.0
Argentina	43	159	1.5	1.8
Bolivia	6	32	0.40	0.45
Brazil	2,690	2,711	77.9	81.9
Colombia	40	55	1.2	2.4
Ecuador	40	40	1.2	0.6
Guatemala	5	12	0.1	0.1
Mexico (c)	830	862	31.4	33.2
Peru	86	123	3.7	3.8
Venezuela	47	47	1.4	1.5
Total Latin America	3,787	4,041	121.5(d)	126.7(d)
Bulgaria	10	34	1.3	1.2
Egypt	87	97	1.2	1.7
Greece	231	231	3.5	3.5
Iran	40	40		0.3
Rumania	34	35	5.8	4.2
Turkey	101	104	1.2	1.4
Yugoslavia	146	141	11.7	10.9
Total Balkans and Near East	649	682	24.7	23.2
Percent of world total				
Latin America	2.35	2.64	3.85	4.05
Balkans and Near East	0.40	0.45	0.78	0.74

(a) 31 July

(b) 31 January

(c) 31 December 1930 and 1934

(d) Including other Latin-American countries 1931 0.7 thousand, 1934 0.9 thousand

SOURCES — Statistical Year-Book of the League of Nations 1935/36, p. 168, International Cotton Bulletin, July 1934, pp. 538-539

The causes underlying the diffusion of cotton textile manufacturing from a few centres of advanced industrialism to newer countries are complex. In general, four main factors may be emphasised.

First is the post-war development of economic nationalism, aiming at the maximum of economic self-sufficiency, and stimulated

in raw material producing countries by their inability to pay for imports as a result of their inability to sell their raw materials profitably in falling markets during the recent depression

Second is the continued advance of the Industrial Revolution. Despite the recognised advantages of the international division of labour, the application of this principle is far from requiring that each important commodity be produced in one country or district, and in that one country or district alone. In view of the capacity of modern machine technology to raise national standards of living in industrially undeveloped countries, it is natural that in many such countries possessing access to sufficient capital and labour, programmes of industrialisation should be undertaken.

Third, cotton manufacturing seems to be peculiarly appropriate as a first step for countries seeking to incorporate modern industrial technology into economic systems still predominantly agricultural. The techniques of production are relatively simple, standardised and stable, in the weaving section, at least, the capital requirements are fairly moderate.

Fourth, cotton manufacturing calls for plentiful supplies of more or less unskilled workers, and in the agricultural regions, where the industry has been expanding during recent years, supplies of such workers have been plentiful. In fact it would be permissible to speak of a tendency for cotton manufacturing to move from countries or regions of higher to those of lower labour costs.

### 3 — *Intra-National Shifts India and the United States*

Two striking examples of the tendency for cotton manufacturing capacity to move within the same country from regions of higher to those of lower labour costs are furnished by India and the United States. In India capacity has long been moving from Bombay to "up-country" districts, notably Ahmedabad, in the United States, similarly, a shift has long been in progress from New England to the Southern States.

*India* — Already in 1927 the Indian Tariff Board reported that "the present depression in the cotton textile industry has been and is much more acutely felt in Bombay than in other centres" <sup>1</sup> Nine years later, students of the problem again pointed out that "there has been a continuous depression in the cotton mills of Bombay, which have suffered severely from the competition of

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INDIAN TARIFF BOARD *Report on the Cotton Textile Industry*, 1927, p. 206.

lower-cost goods from the new ' up-country mills ' " <sup>1</sup> The extent until 1926, of the movement away from Bombay to such centres as Ahmedabad, Sholapur, Cawnpore, Delhi, Nagpur, Baroda State, is shown in table 8

TABLE 8 — REGIONAL SHIFT OF COTTON MANUFACTURING  
CAPACITY, INDIA, 1923-1926

Year	Bombay's percentage of mill production of	
	Yarn	Cloth
1903 1904	57.6	58.5
1912 1913	52.0	50.3
1920 1921	50.3	51.3
1924 1925	45.5	47.9
1925 1926	38.2	44.6

SOURCES — INDIA *Report of the Indian Tariff Board Cotton Textile Inquiry 1927*, Calcutta, 1927, pp 5 7 9 14

That differences in labour costs were one of the primary factors in motivating the movement shown in table 8 is the conclusion reached by the Indian Tariff Board, it reported as follows

Our examination of the costs of production in the various centres will, we think, have shown that by far the greatest disability from which Bombay suffers is in its high costs of labour. It is also under substantial disadvantages in regard to cost of fuel and power, cost of water, and higher local taxation, but it would seem that these are rather more than offset by advantages in regard to the cost of stores, of insurance and of office expenses. So far as costs of production are concerned, it is in labour costs that is to be found the main reason why the depression in the industry has been felt so much more acutely in Bombay than it has elsewhere <sup>2</sup>

*The United States* — Even larger in scope and consequences than the inter-regional movement within India has been the transfer of cotton manufacturing activity in the United States from the New England States (above all, Massachusetts and Rhode Island) to the South (above all, North and South Carolina, Georgia and Alabama). All statistical measurements testify to the great magnitude of this movement, three of the most important, quantum of cloth output, spindles in place and active spindle hours may here be briefly examined <sup>3</sup>

In 1923, Southern mills produced 51 per cent of the value of all cotton goods manufactured in the United States, New England mills, 38 per cent. By 1933, the percentage for mills in the South had risen to as high as 69 per cent, that of New England had fallen to as low as 24 per cent. To appreciate the full meaning of this change, in terms of quantum, it should be kept in mind that New England mills tend to operate more on light, fine goods, Southern mills more on heavy, coarser fabrics. More specifically, the South's share of all woven cotton goods rose, between 1923 and 1933, from 61 to 80 per cent by weight and from 58 to 78 per cent by yardage.<sup>1</sup>

As regards number of spindles and active spindle hours, the United States *Cabinet Committee Report* of 1935 may be cited. With reference to number of spindles, the Committee summarised the relevant statistics as follows:

In 1922-1923 the New England States reached a peak of approximately 19 million spindles, and subsequently declined to an average of 10.8 million spindles in 1932-1933. The spindlage in the cotton-growing States continued to grow from approximately 16.5 million spindles in 1922-1923 to 19.1 million spindles in 1929-1930. At this point there was an approximate stabilisation of Southern spindlage. Spindlage in place in the South overtook that of New England during the year 1925-1926. The movement has not been uniform in all the States in the North and South. Relatively the greatest loss of spindlage in place occurred in Massachusetts. The smallest losses of spindlage in New England have been in Maine and Connecticut. In the Southern States the most marked percentage growth of spindlage has been in the deep South. Thus, from August 1921 to March 1935,

A number of factors are responsible for the displacement of cotton manufacturing from New England toward the South. It appears clear, however, that the principal factor has been, and is, the disparity in labour costs between the regions.<sup>1</sup> Significantly, the narrowing of the differential wage-margin under the NIRA codes of fair competition was accompanied by a larger measure of recovery in New England than in the South.<sup>2</sup>

The movement of cotton manufacturing to the South has created in New England (in such cities as New Bedford, Fall River and Lowell, and especially in the smaller towns) a serious problem of more or less permanently "stranded populations" similar to that of the "distressed or special areas" of the United Kingdom. The Cabinet Committee reported that

The evidence is clear that mill closings in New England which occurred largely prior to 1933, have left large stranded populations which will probably never be reabsorbed in cotton manufacture. Further loss in spindlage will accentuate this already serious national problem.<sup>3</sup>

#### 4 — *Changes effected by the World War*

Followed as it was by the carving out of new national boundaries, the World War brought about many significant changes in the international localisation of cotton textile manufacturing. The nature of these changes and of the resulting problems may be summarised in the formula of *constant productive capacity in the face of contracted national markets*. Three changes are particularly noteworthy in Europe. First, the establishment of Poland as a national State cut off a major cotton manufacturing district from the territory of the old Russian Empire. Second, the dissolution of the Austro-Hungarian Empire into the Succession States created certain problems of manufacturing-marketing disequilibrium in several of the component parts of the old Monarchy.<sup>4</sup> Third, the transfer of Alsace-Lorraine from German to French

sovereignty shifted with it a major cotton manufacturing district

The productive capacity of the Polish cotton industry before 1914 was based upon a market as extensive as the whole of the Russian Empire. After 1919 the national market freely available to the output of Polish mills suffered radical contraction, the capacity, however, remained—discounting deterioration because of the war—as large as it used to be. Much of the continuing strain which, independently of cyclical fluctuations, Polish textile manufacturing has experienced in the last fifteen years may be attributed to this disproportion between potential capacity and effective markets. As for the capacity which was retained by the U S S R, this had a market of large possibilities. With fluctuations to be explained mainly by the relative emphasis laid by national economic policies on the production of capital and consumers' goods, cotton manufacturing in the U S S R has been expanding steadily and rapidly. The cotton textile industry in the Soviet Union is to-day one of the largest in the world, with prospects of continued growth. Its potential domestic market is very large, and there are distinct tendencies towards the development of a considerable export trade <sup>1</sup>

In the old Austro-Hungarian Empire the regions which later became Czechoslovakia and Austria were both important cotton manufacturing districts, although Bohemia was by far the larger producer. When the old Monarchy was dissolved, Czechoslovakia inherited about three-quarters of the cotton spindles and about nine-tenths of the power looms, most of the rest going to Austria. The results both for Czechoslovakia and for Austria were largely similar to those described above for Poland: enormous productive capacities predicated upon free access to a wide national market now found their areas of tariff-free sales drastically curtailed. Moreover the assignment of relatively more weaving sheds to Czechoslovakia, and of relatively more spinning capacity to Austria, created for cotton manufacturing in both countries serious problems of internal disequilibrium <sup>2</sup>

When in 1919 Alsace-Lorraine was joined to France, 1,891 5 thousand cotton spindles and 50 3 thousand power looms went along with the transfer. This transfer represented, in terms of the

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capacity which Germany lost, about 17 per cent of the latter's 1913 cotton spindles and about 22 per cent of her 1913 looms, and, in terms of the capacity which France gained, an increase over 1913 of approximately 26 per cent. in spindles and about 42 per cent in looms<sup>1</sup> The social and economic strains which accompanied the inclusion of Alsace-Lorraine's large productive capacity into a new national marketing system were, of course, considerable, the repercussions upon Germany's national textile market were also serious and profound In fact it may be questioned whether the process of readjustment for Alsace-Lorraine as a cotton manufacturing region is complete even at this date

#### 5 — *Germany and Italy Policies of Self sufficiency*

The recent difficulties of the cotton textile industry in Germany and Italy represent a type of structural change unknown before the recent worldwide economic crisis In both of these countries, rigid control of foreign exchange has gone hand in hand with bilateral trade arrangements both largely in the pursuit of economic self-sufficiency with emphasis on national defence As a consequence, cotton manufacturing in Germany and Italy is at present suffering from a scarcity of the raw material due to a decrease in imports of raw cotton<sup>2</sup> In their dependence upon imports of raw cotton, the two countries mentioned are no different from such countries as France, Japan, and the United Kingdom In pursuing national self-sufficiency, however, to a much greater extent than most other countries, Germany and Italy have brought structural strains to bear upon their cotton textile industries On the one hand there is reason to suppose that accumulated funds of "free" foreign exchange have been allocated so as to obtain a maximum import of materials regarded as essential, to the detriment of consumption goods, including the textile raw materials As a consequence, Germany and Italy have pushed the use of synthetic textile fibres (and of "recovered" cotton, wool, etc.) further than most other countries On the other hand, bilateral trade arrangements have operated in such a way as to deflect the purchase of raw cotton away from the cheaper world markets toward the dearer "compensation" markets This is particularly true in the case of Germany, as evidenced both by the distribution of its cotton

imports as to source and by the unit values of imports derived from particular sources <sup>1</sup>

It is against the background of this scarcity in raw materials, largely induced by national economic policies, that the present condition of cotton manufacturing in Germany and Italy has to be considered <sup>2</sup> The extent to which the failure of cotton textile manufacturing in these two countries to respond fully to the stimulus of world industrial recovery may be attributed to export marketing problems is considered below

### B — *Wool Manufacturing*

In wool manufacturing, the same countries which were the predominant manufacturers in 1928—the United Kingdom, the United States, France and Germany—were still predominant in 1935 <sup>3</sup> Nevertheless, a number of significant changes were operative during the period First, in Japan, wool manufacturing was expanding at a very rapid rate Second, wool manufacturing was undergoing rapid development also in countries which are themselves important producers of the raw material, notably Australia and Argentina Third, the importance of the U S S R as a wool manufacturer was fluctuating downward Fourth, Germany and Italy as wool manufacturers no less than as cotton manufacturers were beginning to feel the effects of their special monetary and trade policies

The conclusions summarised above are illustrated by the statistics in Volume II Only a few comments need be added here In the first place, two factors combine to explain the United Kingdom's maintenance of her relative status as one of the world's

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two leading producers of woollen and worsted manufactures. First, the United Kingdom has had to meet much less competition in its export markets for wool than for cotton goods. Second, the depreciation of the pound sterling and the simultaneous new measures of tariff protection stimulated the domestic market for home produced woollens and worsteds after 1931. In contrast, the slowness with which wool manufacturing in France responded to world recovery is attributable in part to the delayed devaluation of the franc, and in part also to the collapse of the United Kingdom market after 1931.<sup>1</sup>

As to the woollen manufacturing industry in Japan, it expanded with considerable rapidity from 1928 straight through the world crisis and down to date.<sup>2</sup> After import duties on tops and yarn were first imposed in 1926, Japan became virtually self-sufficient as regards these semi-manufactures. As for wool tissues,

the wool textile industry in Japan produces two main classes of finished products, mainly lightweight woven tissues known as "mousseline de laine" which are used chiefly for Japanese garments, and woollen and worsted tissues of heavier weights, amongst which worsted goods predominate.

The production of "mousseline de laine" expanded rapidly in the early post-war years, and reached a maximum in 1927, when, judging from the partial figures available, output approached 200 million linear yards. Since then, the output has declined slightly on account of changing fashion in favour of European dress and the use of silk and silk waste in place of wool. There was some recovery in 1931 and 1932 but a renewal of the downward trend occurred in 1933 and 1934. "Mousseline de laine" is made almost entirely for home consumption, and the exports, the greater part of which go to Japanese Dependencies, account for probably less than 5 per cent. of the output. Japan herself produces the whole of her requirements of this class of tissue. The weaving of foreign type serges by small weavers in the Nagoya district is a comparatively recent development, and production is now estimated to be in the neighbourhood of 30 million square yards, of which more than a third is exported.

Compared with the extent of her trade in cotton and rayon products, Japan's exports of woollen and worsted goods are very small. Their significance lies in the fact that they are expanding rapidly. The bulk of the exports are of medium quality light worsteds for shipment to tropical and sub-tropical countries, the manufacture of woollen goods in Japan being as yet relatively unimportant.<sup>3</sup>

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<sup>1</sup> France's exports of wool tissues to the United Kingdom, which averaged 10.6 million lbs. from 1928 to 1931, dropped to an average of 0.6 million lbs. from 1931 to 1935. The entire change occurred between 1931 and 1932. See *World Consumption of Wool*, p. 75.

The recent developments of wool manufacturing in Argentina and Australia are typical examples of industrial changes impinging upon the national economy of countries rich in agricultural resources. In fact, of the major raw wool producers, only the Union of South Africa is to-day without a wool manufacturing industry of appreciable magnitude <sup>1</sup>. As for Argentina,

although the Argentine wool textile industry was established over fifty years ago, development was slow and less than five mills were in existence before the World War. During the war, however, the difficulties of foreign trade gave the wool industry the opportunity of development, and although it subsequently suffered a set-back, it received a fresh impetus after 1930, owing to increasing home demand, to an increase in duties on wool textiles in 1931, and to the depreciation of the peso. During the succeeding three years manufacturers increased their capacity and established many small mills, which almost without exception prospered <sup>2</sup>.

In the case of Australia,

it is only quite recently that the Australian wool textile industry has acquired almost complete command of the domestic market for wool products. The fact that the greatest development in the manufacturing side of the industry has taken place during the last thirty years has resulted in a high level of efficiency as regards plant and machinery. A large measure of tariff protection has been afforded the industry, and the home manufacturer also benefited by the depreciation of the Australian currency. The consequent decline in imports of woven products has been mainly at the expense of the United Kingdom.

Available statistics indicate that with the exception of certain specialised classes of goods Australia now manufactures the greater part of her requirements and in addition is developing an export trade in tops, noils and wastes <sup>3</sup>.

Other examples of the recent expansion of wool manufacturing in agricultural countries are furnished by Chile, Denmark, Hungary, and New Zealand among others <sup>4</sup>.

In so far as the Soviet Union is concerned, wool manufacturing activity, as judged by estimated available supplies of the raw material, fluctuated toward lower levels from 1928 to 1935. This downward tendency is in all probability a short-run phenomenon related to internal economic policies.

As for Germany and Italy, wool manufacturing in these countries is now facing the same scarcity of raw materials as cotton manu-

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facturing, and for substantially the same reasons. Between 1933 and 1935, for example, available supplies of raw wool in both Germany and Italy contracted sharply. Moreover, the sources of supplies shifted materially, much as in the case of cotton, from free world markets to "compensation" markets. Again, programmes stimulating home production of wool substitutes, and maximum recovery of used wool and waste, have been promoted energetically in both cases.<sup>1</sup>

### C — *Silk and Rayon*

In most of the countries manufacturing silk tissues on a large scale, notably the United States, the fortunes of the silk manufacturing industry have in recent years fluctuated for the most part cyclically. It would nevertheless appear, from the figures of retained imports of raw silk and the indices of manufacturing activity, that the silk textile industry is undergoing structural expansion in a number of countries, of which the United Kingdom, Japan and Canada are the most important.<sup>2</sup> It is altogether probable that the rapid expansion indicated by these figures foretells serious and more or less permanent strains upon such silk manufacturing countries as France, Italy, and Switzerland, where the export ratios run high.

In all countries, rayon manufacturing is a new industry, developing with all the vigour of youth. From 1925 to 1935, with hardly a break or pause, world production of and world trade in rayon yarn went on rising. The speed and extent of the movement are shown in table 9.

Naturally the rates of expansion of rayon weaving (where capacity, as shown in Chapter IV, has to be estimated from production and trade data for rayon yarn), differ widely among countries. Of those rayon yarn producers where output of yarn is by itself a rough measure of capacity to weave, the most phenomenal rate of increase is that of Japan: output here multiplied from 3.2 million lbs. in 1925 to 217.4 million lbs. in 1935. Expansion in output in the United States from 51.1 million lbs. in 1925 to

TABLE 9 — WORLD PRODUCTION AND WORLD TRADE IN RAYON YARN  
AND STAPLE FIBRE, 1925-1935  
(in million lbs)

Year	Production		Trade in rayon yarn	
	Rayon yarn	Staple fibre	Exports	Imports
1925	186			
1929	432	8	124	103
1932	529	22	126	114
1935	949	134	153	143

Source *Industrial Fibres*, 1936, pp 96, 97, 98 101

256.7 million in 1935 was also remarkable both for rapidity and absolute volume. Of the countries where weaving capacity may be estimated by retained yarn imports alone, striking rates of expansion, between 1928 and 1935, are shown, in particular, by Argentina, India, Mexico, and Yugoslavia.<sup>1</sup>

More important than the differential rates of increase for particular countries, however, is the fact of rapid expansion in rayon manufacturing the world over. Inevitably, because rayon and staple fibre compete with the natural textile fibres, some downward pressure on other branches of the textile industry is brought into play. The extent of this pressure is by no means as great, however, as is often supposed. First, as a large part of rayon yarn goes into mixtures with silk, wool and cotton, the downward pressure on markets for silk, wool and cotton is considerably eased. At the same time, even pure rayon tissues are generally woven on looms already in existence as part of the cotton, wool or silk textile industries. Thus, the expansion of rayon largely replaces one weaving material by another without affecting seriously total manufacturing activity or employment. The development of staple fibre, moreover, carries this process back a step further and compensates spinning mills, in part, for the curtailed activity attributable to the competition of rayon yarn chemically produced. In the long run, rayon may be regarded as a catalytic agent operating to unify the various branches of the textile industry. Even to-day, the progressive development of mixed rayon tissues is blurring further the already indistinct boundaries between "cotton", "wool" and "silk" mills.

<sup>1</sup> *Industrial Fibres*, 1936, pp 96, 101.

## D — *Linen and Jute*

Both linen and jute manufacturing, from 1928 to 1935, experienced material structural changes. In many countries, above all the Soviet Union, linen manufacturing expanded between 1928 and 1935. Other countries where the movements of available flax supplies and of indices of linen manufacturing activity point to a structural expansion of the linen textile industry are Poland, Rumania, Denmark and the Irish Free State <sup>1</sup>

As for jute, the dominant positions of India and of the United Kingdom as manufacturing countries remain unshaken. In other important manufacturing countries—for example, Germany, the United States, and Czechoslovakia—recent fluctuations in activity seem to be entirely cyclical. Nevertheless, there would appear to be a tendency for jute, like all other branches of textile manufacturing, to develop in new countries. This is evidenced by the increasing imports of raw jute from India by such countries for manufacturing purposes <sup>2</sup>

## II — CHANGES IN WORLD TRADE

Structural changes in production are intimately connected with structural changes in world trade, and vice versa. On the one hand, changes in import and export markets caused by commercial and monetary policies modify the international distribution of textile manufacturing. On the other hand, expansion and contraction of textile manufacturing in particular countries at differential rates modify the channels through which textile manufactures flow in world commerce.

### A — *Trade in Cotton Goods*

#### 1 — *Changes in Import Markets*

*India* — Some of the most significant structural changes in the world trade in cotton textiles focus upon the Indian market. Briefly, the shifts are threefold. First, imports of cotton cloth into India are declining as Indian mills become increasingly capable of satisfying domestic requirements. Second, as the Indian market has

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<sup>1</sup> *Ibid.*, pp. 64, 66, *World Production and Prices, 1935/36*, p. 146

<sup>2</sup> *Industrial Fibres*, p. 76. The chief countries concerned are Japan, Brazil, China, Argentina.

contracted in the absolute volume of cloth imported, the United Kingdom has had declining absolute and percentage shares in it. Third, Japan's absolute and percentage shares of the Indian import market have been rising.

The evolution of the Indian cotton cloth market from 1913 to 1935 is presented in table 10.

TABLE 10 — THE INDIAN COTTON CLOTH MARKET, 1913-1935  
(in million linear yards and percentages)

	1913-1914	1928-1929	1932-1933	1935
Indian mill production	1,164	1,893	3,170	3,555
+ Retained imports	3,135	1,913	1,204	1,033
- Exports, Indian goods (a)	89	149	66	68
= Mill cloth available for consumption	4,210	3,657	4,307	4,520
India's percentage of available mill cloth	27.6	51.8	73.6	78.7
<i>Imports by source</i>				
United Kingdom	3,044	1,139	586	489
Japan	9	352	570	526
All other	82	122	48	18
<i>Percentage of imports supplied by</i>				
United Kingdom	97.1	75.2	48.7	47.3
Japan	0.3	18.4	47.3	50.9
All other	2.6	6.4	4.0	1.8

(a) Excluding exports by land generally about 4 per cent of total available.

*Note* — The relative proportions of imports furnished to India by the United Kingdom and Japan are to-day largely governed by the Indo-Japanese Agreement to be considered in Chapter VIII, which fixes import quotas for Japanese piece goods scaled in accordance with Japan's purchases of Indian raw cotton.

SOURCES: Computed from G. L. HUBBARD, *Eastern Industrialization and its Effects on the West*, pp. 273-274, *Cotton Trade Statistics*, 1936, tables 101, 187, 213 A.

*China* — As was shown earlier in this chapter, cotton manufacturing has been an ever-expanding industry in China since 1890. Within recent years, this process of internal expansion has finally brought Chinese mills to the point where they are capable of supplying almost the full effective home demand for cotton cloth. Between 1926 and 1935, in particular, production of piece goods by Chinese mills almost tripled in volume, while imports of piece goods, as measured by value, practically disappeared. As a consequence, both the United Kingdom and Japan



have had to adjust themselves as exporters to the virtual extinction of a former major market, Japan, however, has retained its market in Manchuria. The evolution of China as a piece-goods market is summarised in table 11

TABLE 11 — CHINA AS A COTTON PIECE-GOODS MARKET, 1926-1935

A — Imports in thousand £

Imports from	1926	1929	1932	1935
All Countries	26,630	22,035	7,064	1,570
United Kingdom	6,288	4,810	2,303	389
Japan	17,917	14,646	4,369	1,131
Hong Kong	1,281	1,489	48	1
U.S.S.R.	317	504	101	—
Other countries	827	586	243	49

B — Production and Trade in Volume

	1927	1929	1932	1934
China's mill production (million linear yards)	360	590	810	939
Exports to China (million square yards) from				
United Kingdom (a)	103	188	125	20
Japan to China	} 49½ (b)	} 375	187	56
to Manchuria			15	170

(a) Exports to China and Hong Kong

(b) Million linear yards

Note — For purposes of comparison exports from the United Kingdom to China from 1909 to 1913, averaged 587 million linear yards annually

Source: Cotton Trade Statistics, 1936 tables 97, 180, 184 215

*South America* — Another important market for piece-goods exports, South America has since 1929 been the centre of structural shifts in world trade. In the first place, in many South American countries—Brazil, Argentina, Bolivia, Colombia, Peru—cotton manufacturing has been expanding at a rapid rate, so that significant proportions of home demand formerly supplied by imports are now satisfied by domestic production. At the same time, as in the case of India, this shrinkage of the import market has coincided with a shift in the relative proportions of that market held by the various oversea suppliers. Japan, in particular, has

been greatly increasing her share of total imports of cotton cloth into South America, meanwhile the United Kingdom, although still retaining her position as the leading piece-goods exporter to that continent, has had a smaller share of the total Italy and the United States, formerly following the United Kingdom as furnishers of important proportions of total South American cotton cloth purchases, have seen their shipments fall off rapidly and continuously during the last six years, the decline for the United States is particularly striking Table 12 shows the recent changes in the South American market as they affect its major suppliers

TABLE 12 — THE SOUTH AMERICAN COTTON PIECE-GOODS MARKET, 1929-35

Exports from	1929	1932	1933	1934	1935
	<i>In million square yards</i>				
United Kingdom	346	204	269	278	238
United States	111	64	57	34	24
Japan	29	28	57	166	198
Total above	486	296	383	488	460
	<i>In thousand quintals</i>				
Italy	164	86	92	74	53(a)
Total (b)	650	382	475	562	513

SOURCE: Cotton Trade Statistics, table J17

## 2 — Trends in Exports

*The United Kingdom* — Before 1914 the predominant supplier of cotton cloth to the world, and still to-day the leading exporter by total value, the United Kingdom has suffered from a drastic and almost unbroken decline in export shipments ever since the end of the World War By far the largest factor in this decline, when 1913 is compared with 1935, has been the huge curtailment of purchases by India Other major elements have been the almost complete collapse of outlets in China and other Far Eastern countries, the considerable contraction in Latin-American sales, as

**TABLE 13 — EXPORTS OF COTTON PIECE GOODS, UNITED KINGDOM, COUNTRIES AND KINDS, 1913 AND 1935**  
(in million linear yards)

	All kinds		Grey unbleached		White bleached		Printed		Piece-dyed		Yarn-dyed	
	1913	1935	1913	1935	1913	1935	1913	1935	1913	1935	1913	1935
British India	3 057	498	1,483	91	782	234	470	82	286	36	36	5
China, Japan and Hong Kong, etc	773	18	265	1	275	4	37	1	189	11	8	1
Netherland East Indies, Ceylon, Straits Settlements, etc	549	83	83	5	152	35	158	17	99	19	47	6
South America	582	280	46	18	182	58	125	64	155	118	74	22
Mexico, Central America and West Indies	168	86	8	3	68	14	27	24	39	37	31	8
United States and Canada	157	70	28	20	49	17	28	12	42	16	9	5
Australia and New Zealand	211	167	35	48	66	41	38	32	60	42	12	15
Europe (excepting the Balkans)	369	200	198	84	69	25	32	38	83	47	6	3
Balkans, Near and Middle East	476	95	94	6	147	38	139	14	81	34	16	6
North Africa	337	60	87	7	155	30	73	7	37	14	5	2
West Africa	243	236	14	27	71	64	76	87	44	34	38	21
South and East Africa	121	178	46	6	33	33	27	65	35	62	9	12
Total, all countries	7,075	4,970	2,957	315	2,045	582	1,231	443	1,151	520	290	110

Source: *Board of Trade Journal*, 24 Sept 1916 pp 430-431 Small exports to Irish Free State (1935 only) excluded

well as the sharp reduction in exports to the Balkans, the Near and Middle East, to North Africa, to the rest of Europe, and to North America. In the face of this universal decline, only in a few markets have British piece goods found anything like continuing or increased acceptance. South and East Africa, West Africa, Australia and New Zealand. The extent and character of the shrinkage is summarised in table 13.

It is seen from table 13 that in this more or less general decline the categories of exports hardest hit by far were the plain cloths, that is goods in the grey together with bleached fabrics. It is no mere coincidence that a catastrophic contraction which, viewed in terms of regional markets, took place principally in India, China, and other Asiatic countries, should, when viewed in terms of cloth types, have taken place mainly in the coarser and cheaper fabrics. In fact, the predominant element in Lancashire's persisting structural depression may be defined as the progressive decline of power to sell the plainest kinds of cotton cloth in the lowest income markets of the world. During the last three or four years, however, British fabrics have succeeded in maintaining their value share of the contracting world market for cotton piece goods, while the absolute volume of such exports has more or less been stabilised at the level of about 2 billion square yards annually. Excepting India, the volume of United Kingdom exports of cotton cloth has in fact shown a rising tendency <sup>1</sup>.

TABLE 14 — UNITED KINGDOM EXPORTS OF COTTON PIECE GOODS,  
1929 AND 1935, ACCORDING TO TARIFF TREATMENT IN 1935

(in percentages of total volume exported to all countries)

	Quota only on competi- tors of United King- dom	Tariff prefer- ence for United King- dom	Ex- change restri- ctions	Quota on United King- dom	Non- discrimi- natory high tariff	Non- discrimi- natory low tariff	British India (a)	All other
1929	7.5	12.6	10.7	11.2	2.4	13.9	37.5	4.2
1935	14.1	19.5	14.1	9.0	0.7	10.3	27.9	4.4

(a) Protective tariff, tariff preference for United Kingdom, quota on imports from Japan.

In the process of contraction in United Kingdom shipments since 1929, the regional composition of the markets of the United Kingdom has been modified under the influence of four factors (1) increased import duties, (2) quota restrictions, (3) preferential tariff rates, and (4) exchange restrictions. The net results on the structure of the existing British world market are shown in table 14.

*Japan* — From 1924 to the end of 1935, the volume of cotton cloth exports from Japan experienced unbroken expansion, the major leap forward occurring between 1931 and 1932<sup>1</sup>. In fact the so-called problem of "Japanese competition" has arisen principally by virtue of a rising volume of textile exports from that country in a world market which was shrinking because of cyclical and structural developments. The comparative evolution of cotton cloth exports from Japan and the United Kingdom is shown in table 15, attention may be directed especially to the varying developments of grey, bleached and coloured fabric shipments.

Another major element in the problem of "Japanese competition" has been the preponderant orientation of Japanese cloth exports, in a world everywhere suffering from curtailed incomes, toward regional markets lowest in the income scale. South Asia, the Far East, Colonial Africa, etc. Thus between 1931 and 1935, Japanese shipments of cotton goods to Colonial Africa multiplied threefold, shipments to India and Ceylon rose by 40 per cent, the decline in shipments to China was more than made up for by a greater than twofold increase in exports to other parts of the Far East. At the same time, it should be realised that Japanese exports to national markets quite high in the income scale, e.g. the United States and some of the British Dominions, have also risen markedly. The changing Japanese export market structure is shown in table 16.

In the process of Japan's expansion as an exporter of cotton cloth, the United States and Italy as well as the United Kingdom have felt the impact of profound structural changes. First, Japan has entered Latin-American markets on a large scale during recent years, this entry has coincided with a drastic decline of exports from the United States and Italy, together with a moderate drop in shipments from the United Kingdom, as shown in table 12. Second, Japan has replaced the United States as the principal

<sup>1</sup> The value of Japan's exports, as computed in foreign exchange, has not kept pace with the increased volume. The yen value has, of course, expanded considerably, but at the same time the yen has depreciated further than most other major currencies.

<sup>2</sup>  
TABLE 15 — JAPAN AND THE UNITED KINGDOM AS COTTON PIECE-GOODS EXPORTERS, 1924-1936  
(value and volume)

	1924	1928	1929	1930	1931	1932	1933	1934	1935	1936
<i>Value in million £</i>										
United Kingdom	153 ½	107 3	99 3	61 3	37 3	43 6	40 2	39 8	39 5	40 3
Japan	30 ½	33 6	39 2	27 7	21 5	22 6	23	29 1	29 1	28 5
<i>Volume in million square yards</i>										
United Kingdom	4,444	3,867	3,672	2,407	1,716	2,198	2,031	1,994	1,949	1,917
Japan	997 (a)	1,418	1,791	1,572	1,444	2,032	2,090	2,577	2,725	2,708
<i>Volume in million square yards, by kind</i>										
Grey, unbleached										
United Kingdom	1,515	1,084	1,034	581	402	366	375	359	329	316
Japan		608	816	672	561	749	611	773	945	964
White, bleached										
United Kingdom	1,394	1,349	1,295	877	639	783	654	615	611	602
Japan		115	128	163	190	360	464	510	511	498
Coloured (printed, yarn or piece dyed)										
United Kingdom	1,535	1,434	1,342	950	776	1,048	1,002	1,019	1,008	998
Japan		696	846	737	662	923	1,015	1,295	1,269	1,246

(a) Million linear yards.

Sources: Cotton Trade Statistics, 1933 tables 180, 184, 1936, tables 178, 180 186 Manchester Guardian, 17 January 1937, Board of Trade Journal 21 January 1937, p. 82

supplier of cotton cloth to the Philippine Islands. Third, Japanese exports of cotton cloth to the United States itself have been mounting rapidly. Each of these three problems may in turn be briefly considered.

TABLE 16 — EXPORTS OF COTTON PIECE GOODS, JAPAN, BY MARKETS,  
1924-1935  
(million square yards)

	1924 (a)	1929	1931	1932	1933	1934	1935
Total	997	1,791	1,414	2,032	2,090	2,577	2,725
British India	444	581	404	645	452	411	556
Ceylon						41	5
Kwantung	45	56	38	89	86	84	68
Hong Kong	53	85	63	23	29	36	49
Manchuria		156	21	15	92	170	161
China	418	975	218	187	113	59	56
Total above	516	672	340	314	320	349	334
Netherland Indies	89	193	212	352	423	441	371
Malaya	15	30	41	82	96	91	47
Siam	4	18	6	25	40	61	70
Philippine Islands	18	27	33	21	95	76	88
Total above	126	268	292	480	594	669	576
South America	8 (b)	29	17	28	57	166	198
Australia	21	14	21	16	55	75	87
New Zealand	2	1	1	1	3	3	5
Total Australia and New Zealand	23	15	22	37	58	78	92
Egypt	57	107	104	195	210	234	164
Aden	(c)	(c)	35	61	39	45	60
Turkey	13	41	25	42	11	8	20
Total above	(70)(c)	(118)(c)	164	298	260	287	244
South Africa	1	14	39	36	26	16	26
Other Africa	(c)	41	84	128	187	256	286
Other countries	(99)(e)	(51)(f)	52	65	137	305	407

(a) Million linear yards

(b) Argentina only

(c) Nil, or included with 'other countries'

(d) Not including Aden

(e) Including Aden and 'other Africa', if any

(f) Including Aden, if any

SOURCE: Cotton Trade Statistics, 1933, tables 184, 186, 1936, tables 184, 186, 317

*Latin America* — Argentina, Chile, Colombia, Cuba and Haiti are major Latin-American markets meriting particular analysis. The rise of Japan as an exporter to these markets since 1929, and the decline in the importance of the United States, Italy and the United Kingdom are summarised in table 17, in examining the table, it should be kept in mind that Japan's exports to most Latin-American markets reached their peak in 1934, and have since declined somewhat, largely as a consequence of tariff restrictions and discrimination considered in Chapter VIII.

TABLE 17 — CHANGES IN LATIN-AMERICAN COTTON CLOTH MARKETS, 1929-1935

(in million square yards)

Exports to	Exports from								
	United States			Japan			United Kingdom		
	1929	1931	1935	1929	1931	1935	1929	1931	1935
Argentina (a)	23.9	12.8	0.4	17.6	10.5	103.4	144.2	93.1	134.2
Chile	28.2	13.0	11.8	4.4	2.4	26.8	49.9	8.5	16.9
Colombia	26.0	26.4	8.8			22.0	41.8	31.4	40.5
Cuba	76.6	53.6	55.4	0.1	0.4	9.8	18.9	4.1	9.1
Haiti	14.5	14.7	4.9			15.4	2.0	2.0	3.1

(a) Exports from Italy to Argentina, in thousand quintals 1929, 118.5 1931, 70.1, 1934, 62.3

SOURCES: *Cotton Trade Statistics*, table 190 UNITED STATES TARIFF COMMISSION, *Recent Developments in the Foreign Trade of Japan 1936*, pp. 65-66. *Annual Statement of the Trade of the United Kingdom, 1930*, pp. 180-181, 1935, pp. 245-246.

It would be incorrect to interpret these figures without allowing for the fact that Latin America, a producer above all of raw materials, was very hard hit by the world economic crisis. Given the reduction of national income which occurred in Latin-American countries, it was only natural that they should turn from the relatively dearer and finer types of cloths provided by the United States and the United Kingdom to the relatively coarser and cheaper fabrics supplied by Japan. In this connection, it should be emphasized that after 1933, increased production costs and higher selling prices operated to reduce United States exports of cotton cloth to Latin America. In any event, the extent to which Japan's cloth exports to Latin America appeal, particularly to the lower ranges in the income scale is suggested in table 18.



TABLE 18 — UNIT VALUES OF COTTON CLOTH IMPORTS INTO SELECTED  
LATIN-AMERICAN COUNTRIES, BY SOURCE, 1934

(in United States dollars per volume unit) (a)

Imports from	Imports into			
	Argentina	Colombia	Cuba	Haiti
	\$	\$	\$	\$
United States	0 500	0 482	(0 392)	0 365
Italy	0 444	(b)	(b)	(b)
Japan	0 398	0 301	(0 277)	0 260
United Kingdom	0 464	0 597	(0 498)	0 490
All other	0 437	0 509	(0 658)	0 546
All countries	0 446	0 490	(0 398)	0 300

(a) Dollars per square yard for Cuba dollars per lb

(b) Included in "All other"

SOURCE — UNITED STATES TARIFF COMMISSION *Cotton Cloth Report 1936* p 77

The greater part of Japan's increased exports of cotton cloth to Latin America from 1929 to 1935 was achieved at the expense of contraction in exports from the United States, Italy and the United Kingdom. To a considerable degree, however, Japan was probably exploiting levels of demand which would have remained unresponsive if cheap cotton goods had not become available to consumers with much reduced incomes. In short, Japan was not merely competing with the United States, Italy and the United Kingdom, and displacing them as competitors, Japan was also keeping open markets which the depression might otherwise have kept closed.

*The Philippines* — The same general analysis holds true of the Philippine Islands as a market for cotton cloth. In 1929 the Islands imported 139.8 million square yards of piece goods, of this total, the United States supplied 93.2 million, Japan 23.6 million, the United Kingdom 11.9 million, and China and Switzerland, among other countries, the small balance. In 1931 imports from the United States fell to 55.9 million and from the United Kingdom to 5.1 million, while those from Japan forged ahead to 39.2 million square yards. In 1934 Japan and the United States occupied the market almost by themselves: imports from Japan now rose to 67.4 million square yards, those from the United States sank

further to 51.8 million <sup>1</sup> In short, imports from Japan were progressively replacing imports from all other major suppliers throughout the depression period 1929-1934. What is more, these imports from Japan were definitely being directed towards the lower levels of demand: thus in 1934 the average per unit value of Japanese cloth (\$0.056 per square yard) was only half the unit value of United States cloth (\$0.111) and a still smaller fraction of the unit value of United Kingdom cloth (\$0.136) <sup>2</sup>

*The United States Home Market* — Although imports supply the United States with but a negligible proportion of its cotton cloth domestically consumed, in absolute volume such imports are substantial. Before 1931 the United Kingdom furnished three-quarters of the yardage of cotton cloth annually imported into the United States, followed by Switzerland, France, Czechoslovakia, Japan and Germany, in the order mentioned. From 1931 to 1934 the demand for British cloths contracted sharply, so that Switzerland took the lead by virtue of its exports of permanent finished organdies, a fine-yarned, high-priced speciality. In the beginning of 1934, however, "imports of lower-grade, lower-price staples from Japan increased sharply with the result that in December of 1934 and throughout 1935 Japan was the main source on the square-yard basis of American imports of cotton cloths" <sup>3</sup>

In terms of percentage change, the United States has been one of the most rapidly expanding markets for Japanese exports of piece goods since 1929. In that year such shipments totalled 1.22 million square yards, they rose to 7.29 million in 1934 and to 36.5 million in 1935, a total rise of about 3,000 per cent over the whole period. Meanwhile the yardage of imports from the United Kingdom to the United States fell below a third of the 1929 level, imports from Switzerland were cut by a full half, from Czechoslovakia, by more than a half, etc. <sup>4</sup> As in Latin America and the Philippine Islands, so also in the United States, imports of cloth from Japan are of particular appeal to the lower-income groups. Thus in 1935 the unit value of Japanese cloth averaged 31.2 cents per lb., of United Kingdom cloths \$1.13, and of Swiss cloths \$2.10, etc. <sup>5</sup>

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*French Export Markets* — Recession in the volume of cotton fabric exports from France between 1927 and 1935 was quite drastic. From the prosperity level of 784.2 thousand quintals attained in 1927, exports had already declined to 672.2 thousand by 1929, from this level, they sank to 389.4 thousand in 1932, a volume maintained in 1935.<sup>1</sup> To appreciate the full meaning of this slump, it must be realised that France is one of the countries where the prosperity of cotton manufacturing is tied up with the export trade, about one-third in value of all its cotton fabrics are manufactured for export.

To a considerable extent the contraction in French exports reflects the influence of the world crisis, reinforced by the adverse effects of French monetary policy. Nevertheless a close examination of the distribution of exports discloses profound structural elements connected with the worldwide movement towards the erection of prohibitive tariff barriers, quantitative limitations of imports, bilateral trade restrictions, and foreign exchange control. Thus, in 1930 the French colonies imported 18 per cent of the value of France's entire domestic output of cotton textiles, foreign countries 14 per cent of the total value. In 1934 only 3 per cent of France's output of cotton piece goods was exported to foreign countries, and as much as 28 per cent to the colonies.<sup>2</sup> These figures give some idea of how the pressures operating to exclude France from foreign markets were driving that country into almost exclusive reliance on her colonies as an outlet for cotton cloth exports.<sup>3</sup> The changes in France's export markets since 1927 are shown in table 19.

The extreme contraction of France's foreign markets which this table reveals calls for some comment. The virtual disappearance of the once high-ranking German market is largely to be explained by the cumulative effects of that country's commercial and economic policies. The radical contraction of the British market no doubt reflects currency factors and changed tariff policies. The shrinkage in the Argentine markets is largely attributable to foreign exchange difficulties in Argentina and to delayed devaluation in France. Had it not been for France's success in maintaining colonial markets, its exports of cotton textiles between 1932 and 1935 would have become negligible.

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<sup>1</sup> *Cotton Trade Statistics*, 1936, table 191.

<sup>2</sup> *Bulletin de la Statistique générale de la France*, Oct. to Dec. 1936, p. 113.

<sup>3</sup> The nature of the commercial policies by which France implemented its progressive reliance on the colonial market is discussed in Chapter VIII.

TABLE 19 — EXPORTS OF COTTON FABRICS (a) FROM FRANCE,  
SELECTED MARKETS, 1927-1935

(in thousand quintals)

	1927	1932	1935
<i>To selected colonies</i>			
Algeria	156.5	109.2	132.8
French Indo China	99.7	75.3	79.9
Madagascar	44.9	35.4	35.1
Tunis	31.3	36.5	46.4
French West Africa	18.6	11.6	46.2
Total above	351.0	268.0	340.4
<i>To selected foreign countries</i>			
Germany	129.2	5.4	1.2
Switzerland	44.4	10.2	4.1
United Kingdom	40.4	5.3	2.8
Argentina	20.1	4.7	2.7
Total above	234.1	25.6	10.8
<i>To other countries</i>	199.1	95.8	38.2
<i>To all countries</i>	784.2	389.4	389.4
<i>Percentage share of</i>			
Selected colonies	44.8	68.8	87.4
Selected foreign countries	29.8	6.6	2.8
Other countries	25.4	24.6	9.8
	100.0	100.0	100.0

(a) Including curtains, embroidery, lace, etc.

SOURCE: *Cotton Trade Statistics* 1936, table 191

*German Exports* — Exports of cotton piece goods from Germany also contracted between 1929 and 1935. In 1929 such exports amounted to 200 thousand quintals, by 1932 they had receded to 80 thousand, and by 1935 had risen somewhat to 96 thousand quintals. At the same time the structure of export markets underwent radical changes as shown in table 20 below.

In 1929, it is seen, the chief markets for Germany's exports of cotton piece goods were the smaller countries adjoining her boundaries, which might be called her "neighbour market", and the United Kingdom. Such countries as Argentina, the United States, Turkey, and the Union of South Africa, were also individually important. By 1932 shipments to all markets had declined 60 per cent in obvious response to cyclical influences, the market which held up best was that of the neighbouring small countries. The true structural changes became operative between 1932 and 1935.

While total exports rose almost 20 per cent, those to the "neighbour market" were more than cut in half, those to Argentina, the United Kingdom and the United States continued their earlier decline. Other markets, however, had expanded by 1935. In that year Turkey took more than five times its 1929 volume, China over four times its 1929 purchases, and British West Africa just seven times as much, the miscellaneous category "all other countries" (where certain Balkan, Near Eastern and Latin-American countries bulk large) increased its purchases by about 50 per cent. On the whole, the changing structure reflects the recent economic and commercial policies of the Third Reich—notably exchange control, clearing agreements, and compensation accords—which have resulted in difficulties in some markets and in trading advantages in others.

TABLE 20 — EXPORTS OF COTTON PIECE GOODS FROM GERMANY,  
SELECTED MARKETS, 1929-1935  
(in thousand quintals)

	1929	1933	1935
<i>To selected European countries</i>			
Austria	4.3	1.4	0.4
Denmark	9.9	4.6	2.9
Netherlands	10.9	14.3	4.5
Switzerland	5.0	5.6	2.5
Total above	30.1	25.9	10.3
<i>To selected countries of the British Empire</i>			
British West Africa	3.8	0.8	5.7
India	2.8	1.6	1.5
United Kingdom	29.6	8.1	6.0
Union of South Africa	7.3	1.1	0.2
Total above	43.5	11.6	13.4
<i>To other selected countries</i>			
Argentina	14.2	1.6	0.5
China	5.2	1.4	6.0
United States	14.0	3.3	1.2
Turkey	9.1	2.7	15.8
All other countries	84.2	33.9	48.5
Total above	126.7	42.9	72.0
<i>To all countries</i>	200.3	80.4	95.7

SOURCE: *Cotton Trade Statistics* 1936, table 197

*Italian Exports* — Italy's exports of cotton piece goods were also drastically curtailed between 1929 and 1934. From the level

of 567 4 thousand quintals reached in 1929, such exports had fallen by 1932 to 339 9 thousand, and by 1934 still further to 241 9 thousand <sup>1</sup> The regional distribution of export markets, moreover, underwent a significant transformation during the period in question, as evidenced by table 21

TABLL 21 — COTTON PIECE GOODS EXPORTED FROM ITALY TO  
SELECTED MARKETS, 1929-1934

(in thousand quintals)

	1929	1932	1934 (a)
<i>To selected Balkan countries</i>			
Greece	21 4	6 3	8 5
Rumania	16 4	11 3	3 6
Yugoslavia	25 8	8 6	11 6
Total above	63 6	26 2	23 7
<i>To selected Near Eastern countries</i>			
Egypt	69 3	47 6	32 8
Turkey	57 6	34 3	7 1
Total above	126 9	81 9	39 9
<i>To selected African countries</i>			
Eritrea	18 1	20 0	18 3
Morocco	20 6	18 1	16 8
Total above	38 7	38 1	35 1
<i>To selected Asiatic countries</i>			
India and Ceylon	30 2	12 1	2 8
Netherlands Indies	16 4	5 5	1 4
Total above	46 6	17 6	4 2
<i>To selected South American countries</i>			
Argentina	118 5	78 4	62 3
Uruguay	11 6	3 5	6 0
Total above	130 1	81 9	68 3
<i>To all other countries</i>	161 4	94 2	70 7
<i>To all countries</i>	567 4	339 9	241 9

Table 21 shows that the leading markets for Italian exports of cotton piece goods in 1929 were South America and the Near East, each of which took at least a fourth of the total. The Balkan, the Asiatic and the African markets were also responsible for substantial proportions in the order given. The changes between 1929 and 1932 were, as in the case of Germany, almost entirely cyclical, except for the pronounced resistance of markets in Eritrea and Morocco, and the particularly sharp decline in the shipments to India, Ceylon and the Netherlands East Indies. Between 1932 and 1934, however, the changes were almost entirely structural. First, the African markets were maintained almost intact in the face of general contraction. Second, the Balkan markets also held up at virtually their 1932 level. On the other hand, third, the chief Asiatic markets came close to disappearing. Fourth, the Latin-American markets yielded ground moderately. By and large, these changes mainly reflect the influence of Italy's economic and commercial policies of the last few years—particularly the commercial drive towards Northern Africa, the Balkans and the Near East, and the maintenance to a considerable degree of Italian economic ties with South America.

*Summary* — Limitations of space make it impossible to examine the distribution of exports for other countries such as the U S S R, Czechoslovakia, Poland, Belgium, Netherlands and Switzerland. Such an examination would serve to reinforce the fact that at the root of all the structural changes in the cotton textile trade here described are the "natural" or "induced" advance of industrialism in many countries, restrictive commercial policies, and changing standards of consumption. Almost all major exporters of cotton textiles have not only experienced contraction in the absolute volume of their market, but have also undergone transformations in market structure. At the same time, other cotton manufacturing countries—Japan above all, but the Soviet Union and Portugal as well—have succeeded in expanding the quantity of their cotton cloth exports in the face of the general world crisis.<sup>1</sup> Owing to these policies, combined with the effects of the depression,

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<sup>1</sup> Exports from the Soviet Union rose from 38 thousand quintals in\*1928 to 188 thousand in 1932 and to an average of 200 thousand quintals in 1934 and 1935. Portugal's exports, which declined from 15 to 9 thousand quintals between 1919 and 1930 thereafter rose steadily to 25 thousand in 1935 (*Cotton Trade Statistics* 1936, Table 179). Scattered trade returns indicate that Soviet exports have recently been, or are at present, a substantial factor in such countries as Argentina, China, Iran, and Turkey.

the increased exports from particular countries were bound to strain the world trading mechanism at critical points. So far as cotton goods are concerned these critical points were located in South Asia, the Far East, and tropical Africa, and in all regions, at the lower levels of the income scale. Moreover, the capacity of such regions as the Balkans, the Near East, South America, and Northern Africa to absorb imports of cotton cloth through long-established channels was being radically modified, after 1932 at least, by the evolution of many new commercial devices and policies tending toward the widespread replacement of multi-lateral by bilateral trade.

Although exports of cotton cloth were falling heavily during the depression, those of cotton yarn suffered only a moderate decline. At the same time, and still more significantly, mill consumption of raw cotton was extremely well maintained. These three inter-related but differing movements, summarised in table 22, resulted from the interaction of at least three factors: (1) the continued spread of the cotton textile industry to newer manufacturing countries and its continued growth therein, (2) the well-recognised tendency to develop weaving ahead of spinning in such countries, and (3) the relative resistance of the textile knitting industries to the world slump and the resultant maintenance of demand for yarn. An additional influence was the probable tendency, during a world economic crisis, to produce coarser and heavier constructions of cotton cloth.

TABLE 22 — WORLD PRODUCTION AND WORLD TRADE IN COTTON TEXTILES, 1929-1935

	1929	1931	1933	1935
Production (mill consumption of raw cotton)	100	87	96	99
Exports of yarn	100	83	76	75
Exports of piece goods	100	63	68	72

SOURCE: Computed from *Cotton Trade Statistics*, 1936, tables 72, 131 and 179.

### B — Trade in Wool Textiles

As in cotton textiles, so also in wool textiles, world trade has contracted much more sharply, since 1928, than world output.



The situation, so far as it lends itself to statistical determination, is presented in table 23

TABLE 23 — WORLD PRODUCTION AND WORLD TRADE IN WOOL TEXTILES, 1929-1934

	1929	1932	1934
Production of tops and yarn	100	92	87
Exports of tops	100	103	98
Exports of yarn	100	58	62
Exports of tissues	100	44	47

SOURCE: Computed from *World Consumption of Wool 1928-1934*, Appendices 2, 4, 6 and 7. Production figure is estimated available supplies of raw wool in consuming countries.

All four of the movements shown in table 23 are interrelated largely by the increasing productive activity at all stages of manufacture in a number of countries where wool manufacturing is a developing industry. First and foremost, the index of activity in manufacturing tops and yarn for the world as a whole conceals divergent movements in its component regional parts. Thus, during the period under review, the index for the eleven countries which were major wool manufacturers in 1929 declined from 100 in that year to 89 in 1932 and 82 in 1934.<sup>1</sup> In contrast, the same index for nine countries of recent expansion in wool manufacturing rose during the corresponding period from 100 to 130 to 162.<sup>2</sup> These divergences mean, second, that pre-existing export channels for wool tissues have become clogged, inasmuch as the newer manufacturing countries are spinning the yarn and combing the tops for home weaving at the expense of former imports. Third, because weaving tends to develop more rapidly than combing and spinning in at least the early stages of establishing a domestic wool-textile industry, world trade in yarns and tops has been somewhat better maintained than international commerce in finished tissues.<sup>3</sup>

As table 23 shows, trade in wool tops, a highly specialised semi-manufacture, was the only form of international wool textile trade which remained actually constant in quantum during the world crisis. On the import side, this constancy was mainly to be attributed to the relatively small annual variations of imports into

<sup>1</sup> The countries are Germany, Belgium, Spain, the United States, France, Italy, Japan, Poland, United Kingdom, Czechoslovakia, and the USSR (*World Consumption of Wool*, p. 13).

<sup>2</sup> The countries are Argentina, Australia, Estonia, Greece, Hungary, Latvia, Lithuania, Norway, and Sweden (*ibid.*, p. 14).

<sup>3</sup> See *World Consumption of Wool*, Appendices 4 and 6.

Germany, Belgium, and Czechoslovakia as a group, together with expanding imports into Canada, Hungary, Sweden, and Switzerland<sup>1</sup> On the export side, total shipments from France and the United Kingdom, the principal suppliers, varied little from year to year, those from Germany, particularly to Czechoslovakia, contracted severely, those from Belgium rose substantially<sup>2</sup> As also shown in table 23, trade in wool and worsted yarn went down considerably between 1929 and 1934 Although the United Kingdom maintained substantially the whole volume of its 1929 exports intact during that period, shipments from the other principal suppliers contracted—those from France by almost half, those from Czechoslovakia by approximately the same amount, and those from Germany by almost two-thirds The decline in the case of French exports was mainly attributable to the complete collapse of almost all yarn imports into the United Kingdom between 1931 and 1932<sup>3</sup> In the case of Czechoslovakia, the decline is to be carried back fundamentally to reduced takings by Germany, Austria, and, to a lesser extent, by the United Kingdom<sup>4</sup> Among the major elements in the shrinking markets for Germany's wool yarn exports were the reduced takings above all by China, and also by Japan in the Far East and by the Netherlands, the United Kingdom, and Sweden in Western and Northern Europe<sup>5</sup>

On the import side of world trade in woollen and worsted yarn from 1928 to 1934, the total decline was almost entirely attributable to three factors First, between 1931 and 1932, the United Kingdom, formerly a large market, particularly for worsted yarns from France, ceased, for all practical purposes, to be a market at all Second, without break in each year from 1928 forward, Germany was curtailing at a rapid rate its once heavy imports Third, Czechoslovakia, Hungary, Belgium and Japan similarly were purchasing less and less from foreign suppliers, the Japanese market practically disappearing in 1934 On the other hand, import volumes were well maintained, on the whole, in the Scandinavian countries, in the Baltic and Balkan States, in China, and in Switzerland In fact sharp increases of imports, at rates suggesting more than cyclical growth in weaving capacity, were registered by India, the Irish Free State, and Turkey<sup>6</sup>

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<sup>1</sup> *Ibid.*, p 299

<sup>2</sup> *Ibid.*, p 85

<sup>3</sup> *Ibid.*, pp 73, 302

<sup>4</sup> *Ibid.*, p 152

<sup>5</sup> *Ibid.*, p 87

<sup>6</sup> *Ibid.*, pp 301-302

Most drastic among the declines shown in table 23 was that for international trade in woollen and worsted tissues. The extremely sharp fall between 1931 and 1932, as in the case of yarn, requires that particular attention be given to this critical period, during which the United Kingdom allowed the pound sterling to depreciate and broke with its traditional free trade policy. World imports of wool tissues, so far as recorded by weight, fell from 121 to 71 million lbs. between 1931 and 1932, a total fall of 50 million lbs. Imports into the United Kingdom alone fell from 28 million to 3 million lbs., or 50 per cent. of the whole world decline<sup>1</sup>.

This contraction in British imports, fraught with serious consequences to its old suppliers, was concentrated heavily on three of them. France, above all, and then Germany and Italy. So far as France was concerned, its exports of wool tissues to the United Kingdom went down from almost 9 million lbs. to less than 1 million lbs., almost a complete disappearance of what had been by far the most important export market for French mills. As regards Germany, her sales of wool clothing tissues to the British market fell from over 7 to less than half a million lbs., also a virtual disappearance of the major export outlet. As for Italy, her exports of wool and mixed wool tissues to the United Kingdom went down from over 8 to less than 1 million lbs., i.e. an amount equal to almost all of Italy's export decline<sup>2</sup>. In brief, the tightening of the United Kingdom market against imports of wool fabrics from Germany, France and Italy accounted for about one-fourth of the total shrinkage in the world trade of woollen tissues.

In fact, it would be permissible to conclude that the most profound structural factor in curtailing woollen and worsted trade since 1928 was brought into play when the United Kingdom decided late in 1931 simultaneously to detach the pound sterling from its fixed gold base and to generalise individual safeguarding duties into a protective tariff regime. A second curtailing influence, slower but no less certain in its operation, has been the more than cyclical drop of imports into old final consumption markets now vigorously promoting their own wool manufacturing industry on the basis, in whole or in part, of home supplies of the raw material. China, Hungary, Turkey, as well as Chile, Peru and Uruguay in South America. A third structural restrictive influence has resulted from the gradual closing of certain markets, notably those of

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<sup>1</sup> *Ibid.*, pp. 303, 304.

<sup>2</sup> *Ibid.*, pp. 75, 91, 114.

Germany and Italy, in their evolution away from multilateral toward bilateral trade, and away from full contact with the world economic system toward self-sufficiency <sup>1</sup>

In the general process of contracting trade, the United Kingdom has suffered perhaps less than most other countries. Between 1928 and 1931, it is true, her exports of woollen and worsted tissues were cut to just half their former volume, in fact, the net drop, about 49 million lbs, was close to 60 per cent of the decline by weight of exports for all countries recorded <sup>2</sup>. Since 1931, however, British exports have been more than sustained, by 1934, in fact, they had risen from 49 million lbs in the earlier to 58 million lbs in the later year, against a global decline, for all recording countries, from 156 to 108 million lbs <sup>3</sup>. The fall from 1928 to 1931 was no doubt the result mainly of the industrial depression, the rise since then may be attributed, structurally at least, to the early depreciation of the pound sterling, and to the maintenance of export status in the British Dominions and India, as well as in foreign countries closely tied to the United Kingdom economically, notably Argentina, Denmark and Egypt <sup>4</sup>.

Next to the countries considered above, Czechoslovakia also belongs to the group of countries whose exports of wool tissues experiences a catastrophic fall during the course of the world crisis. Exports from Czechoslovakia began to fall in response to cyclical forces in 1929, they declined from 24 million lbs in that year to 14 million in 1931. Between 1931 and 1932 they were more than halved in volume, and thereafter remained more or less constant until 1935 at the level of about 4 or 5 million lbs yearly. A large part of the collapse between 1931 and 1932 was attributable to lessened exports, not only to the United Kingdom, but also to a number of countries, notably Denmark and Sweden, which at once readjusted their currencies and joined the "sterling bloc". A somewhat more important part of the collapse, however, resulted from the shrinkage in exports to Czechoslovakia's neighbouring markets, Austria, Yugoslavia, Germany, and Hungary. The failure of exports to revive since 1931 is to be explained, in large measure, by the commercial policies pursued during this period by the various countries constituting that "neighbour market",

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<sup>1</sup> For data on reduced imports of wool tissues into the countries here specified, see *ibid*, pp 303-304

<sup>2</sup> *Ibid*, p 303

<sup>3</sup> In 1935, moreover, these tendencies continued (*ibid*, p 26)

<sup>4</sup> For exports to these and other countries, *ibid*, p 46

trade barriers have multiplied perhaps more in Central and Balkan Europe than in most other regions <sup>1</sup>

Only one country has succeeded, and spectacularly, in expanding its exports of woollen and worsted tissues since 1929, that country is Japan. The development of the Japanese export trade in these manufactures is shown in table 24

TABLE 24 — EXPORTS OF WOOLLEN AND WORSTED TISSUES FROM JAPAN, 1929-1935

(volume and value)

	1929	1931	1932	1934	1934	1935
Value (a) in thousand yen	4,153	1,396	4,481	12,377	29,849	32,401
Volume (b) in million square yards	3.4	1.4	4.4	10.3	20.2	21.3

(a) All woollen and worsted tissues

(b) *Mousseline de laine* and wool cloths and serges only that is, about three-fourths of the total yardage in 1935

Sources: *World Consumption of Wool*, p. 123; *Japanese Trade and Industry*, 1936, p. 512

In the expansion of Japanese exports it has only been a question of which markets developed more rapidly than others. The total expansion has been largest in the Kwantung Territory, British India, China, and Manchuria in that order. The largest percentage increases are those for India, Manchuria, the Kwantung Territory and China in that order <sup>2</sup>. Although in absolute quantities involved, the increased Japanese shipments are still inconsiderable when compared with shipments from any of the major European centres, what does command attention is the tempo at which exports have been rising, as well as their regional distribution over much the same markets that Japan exploits most successfully in cotton and rayon tissues.

To conclude the present discussion of shifting world trade in wool tissues, table 25 presents a number of the most important changes.

### C — Trade in other Textiles

That the quantum of trade in silk textiles has contracted more than that of production is strongly suggested by the comparative movements of consumption of raw silk in three groups of major

<sup>1</sup> For exports by Czechoslovakia, see *ibid.*, p. 154.

<sup>2</sup> *Japanese Trade and Industry*, 1936, p. 512.

producers the United States and the United Kingdom, which manufacture almost entirely for domestic consumption, Japan, which produces heavily both for home and export markets, and France and Italy, in which output is destined in large measure for sale abroad. Figures indicative of raw silk consumption in these countries are given in table 26

TABLE 25 — WORLD TRADE IN WOOL TISSUES, SELECTED EXPORTERS AND IMPORTERS, 1928-1935  
(in million lbs.)

Exports to	Exports from									
	United Kingdom		France		Germany		Italy		Czechoslovakia	
	1928	1934	1928	1935	1928	1935	1928	1934	1928	1935
United Kingdom	—	—	13.1	0.4	7.1	0.5	1.2	0.6	2.5	0.1
Germany	4.2	1.2	1.9	0.1	—	—	—	—	2.6	0.1
United States	7.4	2.1	1.5	0.3	—	—	—	—	—	—
Argentina	6.2	3.6	3.2	0.5	(0.8)	—	1.3	0.8	(0.1)	(0.1)
Canada	17.5	7.2	2.4	0.1	—	—	—	—	—	—
France	1.8	1.3	—	—	—	—	—	—	—	—
Italy	1.4	1.0	—	—	0.8	0.3	—	—	1.0	0.1
Japan	7.0	1.0	—	—	—	—	—	—	—	—
Austria	(0.8)	(0.4)	—	—	2.2	0.1	—	—	5.8	0.9
British India	3.4	2.4	1.1	—	1.5	0.1	6.2(a)	8.4(a)	—	—
Exports to all countries	97.1	57.7	46.9	5.7	35.3	8.9	21.7	18.3	23.7	4.5

Note — Figures in parentheses are for imports. Where no figures are given, trade was nil or no separately recorded.

(a) India and Ceylon

Source: *World Consumption of Wool*, pp. 46, 75, 91, 114, 153, 186, 213

In the United States, for many years by far the largest producer and consumer of silk tissues, the index moved with the business cycle. In the United Kingdom, in contrast, where silk manufacture for the home market has been in rapid development since 1931-1932, the index rose at a rate to be explained only by strong structural factors. Activity in silk mills in France and Italy, the largest exporters of silk tissues in Europe, dropped precipitously in a manner to suggest drastic and far-reaching changes in the permanent set-up of their export outlets. These marked declines, there is reason to believe on the basis of evidence presented above, are largely related to the expansion of the industry in the United

TABLE 26 — CONSUMPTION OF RAW SILK, SELECTED COUNTRIES,  
1928-1935

(1928 = 100)

	1928	1929	1932	1933	1934	1935
United States (a)	100	109	97	82	81	87
United Kingdom (b)		(100) (c)		(156)	(178)	
Japan (a)	100	95	148	154	175	
France (d)	100	83	32	37	40	45
Italy (e)	100	94	46	51	48	

(a) Consumption of raw silk

(b) Production of silk yarns, thrown and spun, 1930 = 100 For 1924, the index was 83

(c) 1930

(d) Production of silk textiles

(e) Production of silk yarns

SOURCE *Industrial Fibres*, pp 60-61

Kingdom in response to currency depreciation and tariff protection. Finally, the marked rise in the index for Japan suggests strongly that in silk, as in the case of cotton and wool, that country has been exploiting foreign cloth markets—mostly Asiatic—with growing success ever since the devaluation of the yen in 1931-1932.

In the case of rayon yarn, trade and production have both expanded considerably during the last decade. While output of yarn, however, more than doubled between 1929 and 1935, world exports rose no more than a fourth, the respective developments are shown in table 27.

TABLE 27 — WORLD PRODUCTION AND WORLD TRADE IN RAYON  
YARN, 1929-1935

(1929 = 100)

	1929	1932	1935
Production	100	123	220
Exports	100	102	124

SOURCE *Industrial Fibres*, pp 96, 98 Production excluding staple fibre, which is included in exports

In jute again, as in the other fibres, quantum of output has, in general, held up much better than quantum of international trade. From 1929 to 1935, production of jute yarn in three major manufacturing countries (India, the United Kingdom, and Germany) fell off by less than 20 per cent; world exports of yarn, in contrast, were almost cut in half—a phenomenon directly related to the increased takings of raw jute by agricultural countries as described

earlier in this chapter. On the other hand, exports of jute bags were even more constant than yarn output, although shipments of cloth dropped far more, declining heavily relative to yarn output but not to the extent of yarn exports. It might be surmised that the manufacture of jute bags was relatively uninfluenced by structural developments during the period under review, but that the dispersion of jute textile production has included the weaving of cloth as well as the spinning of yarn. The relevant indices are given in table 28.

TABLE 28 — WORLD PRODUCTION AND WORLD TRADE IN JUTE TEXTILES, 1928-1935

(1928-1929 = 100)

	1928-1929	1932-1933	1934-1935
Production of yarn (a)	100	77	82
Exports of yarn (b)	100	57	57
Exports of cloth (b)	100	52	73
Exports of bags (b)	100	78	88



These differential movements seem to indicate that production and trade in the manufacture of flax, hemp and ramie were subject from 1929 to 1935 to the same play of structural forces as operated on trade and activity in the manufacture of all the other textile fibres

#### D — *Summary*

Thus, so far as textile manufacturing was concerned, the period under consideration was one during which the Industrial Revolution leaped across old regional boundaries to spread to new and distant countries. Superimposed as it was on a long and deep economic crisis, this spread of the Industrial Revolution brought sharp pressures to bear upon international trade in textiles and rearranged its entire network. At the same time, despite the growth of new manufacturing centres, the total output of textile products failed to rise appreciably, partly owing to the depression. By 1936, despite the growth of the world's population, the world output of all textiles combined was at best probably somewhat short of the 1929 level. Was this 1929 level itself adequate to furnish the requirements of the world for clothing, furnishings, and industrial and agricultural fabrics? This is the problem to be considered in Chapter VII

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## CHAPTER VII

### PROBLEMS OF "OVER-PRODUCTION" AND "UNDER-CONSUMPTION"

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The problems created by structural changes in textile production and trade and by the depression, have strengthened the widespread belief that the basic difficulty of the world textile industry is a condition of "excess capacity" resulting in "over-production". On the other hand, it has been contended that the real trouble lies in "lack of purchasing power" resulting in "under-consumption" of textile products. This chapter is concerned with an examination of the available data bearing upon these issues

#### I — SCHEMES FOR THE RESTRICTION OF OUTPUT

The widespread belief that the textile industry suffers from "over-production" is evidenced by the efforts made in different countries to hold down textile output and to curtail productive capacity. In reporting in 1935 to the President of the United States on the cotton textile industry of that country, his Cabinet Committee stated

Perhaps the most serious problem facing the cotton textile industry is the over-capacity of the mills

The codes of fair competition for the textile industry under the National Industrial Recovery Act between 1933 and 1935 were largely inspired by this point of view. Almost all of them embodied provisions restricting productive capacity by limiting machine and plant hours. Under the cotton and silk textile and hosiery codes, for example, manufacturing operations were limited to 80 hours a week—two shifts a day and 40 hours weekly per shift. The wool textile code provided for limitation of operations to two daily shifts of not more than 40 hours a week each, under the cotton garment code there could be no more than one daily shift, limited to 40 hours a week, the rayon and silk dyeing code provided for two shifts limited to 40 hours weekly each, with allowance, however, for varying the total between 80 and 96 hours weekly, etc.<sup>1</sup>

It is questionable how far the N R A codes for the textile industry succeeded in limiting output. As regards the cotton textile code, at least

The maximum two-shift, 80-hour week basis, was designed to limit production. It soon developed that mills which had formerly operated on a one-shift basis were operating two shifts under the code, thus neutralising the effective curtailment in mills formerly operating long hours in two and even three shifts. Following the introduction of the code, a large section of New England changed from a single-shift of 48 to 54 hours to a double-shift, 80-hour week. In the South, the fairly customary double-shift system of 110 hours was reduced to an 80-hour week basis. Offsetting this reduction, many mills in the South formerly operating a single shift of 55 to 60 hours adopted the two-shift, 80-hour a week system. In general, it is evident that the code resulted in no increase in the number of active spindles in the North, while the total weekly hours of operation per spindle increased substantially. On the other hand, in the South, the number of active spindles increased slightly (about 5 per cent) as did also the number of hours of average spindle operation per week (about 3 per cent).<sup>2</sup>

In fact as a result of the above changes and of the failure "to limit the speeding up of machinery and to limit the number of machines to be operated by individual workers",<sup>3</sup> it was deemed necessary by the National Recovery Administration, several times during the life of the cotton textile code, to issue curtailment orders limiting hours of machine operation to 75 per cent of the maximum permitted by the code.

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<sup>1</sup> L S LYON and others *The National Recovery Administration*, Washington, 1936, pp 626-627

<sup>2</sup> *Cabinet Committee Report*, 1935, pp 125-126

<sup>3</sup> *Ibid*, pp 124-125

In the United Kingdom, more or less organised experiments in curtailing output and holding down productive capacity have been in progress for the last sixteen years. Between 1921-1926, when the Lancashire cotton industry had to readjust itself to the local crisis arising out of post-war changes, short-time agreements were frequently attempted in the spinning section. These agreements broke down both before and after 1926 largely because of difficulty in obtaining compliance. In 1927 the Cotton Yarn Association was organised to hold British yarn prices at profitable levels, under a system whereby penalties were collected from spinners who sold below the officially fixed rates. This plan also broke down after a few months. In 1929 the Lancashire Cotton Corporation was founded, with the financial assistance of the Bank of England, in order to amalgamate producing units in the spinning section so as to offset the contraction of export markets by greater productive, commercial and financial efficiency. For a variety of reasons, the Corporation did not make any real progress towards these objectives, and other measures were judged to be necessary<sup>1</sup>.

Proposals to eliminate surplus equipment by statutory measures began to be advanced in 1931 and 1932. At length in September 1934 a majority of the spinners came to approve a programme whereby spindles could be eliminated by purchase through funds provided by a tax on the industry. This plan took legislative form in the Cotton Spinning Industry Act, 1936. It is too early to judge the efficacy of this Act. If, as is generally supposed, the Cotton Spindles Board buys up, to hold out of production, some 10 million spindles, this would amount to diminishing the number of cotton spindles in the United Kingdom by approximately 25 per cent. The true reduction in productive capacity would, however, be less than 25 per cent, for it may reasonably be supposed that the Board will try to eliminate, by voluntary purchase, the largest possible proportion of the obsolete and inefficient spindles remaining in active operation.

Plans for controlling productive capacity in other sections of the British textile industry are also current. Thus, on 16 June 1936, a draft scheme for dealing with surplus capacity in the cotton and artificial silk piece-goods dyeing trade of Great Britain and Northern Ireland was distributed to members of the trade by a committee

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<sup>1</sup> For a full discussion of attempts to reconstruct the cotton textile industry of the United Kingdom from 1920-1930 see SPALTY.

consisting of representatives of competent producers' organisations <sup>1</sup> On 4 November 1936, again, the Joint Committee of Cotton Trade Organisations decided to prepare proposals to give statutory authority to control schemes approved by an adequate majority in each section of the cotton industry <sup>2</sup>

In Japan, where legislation enacted in 1931 aims at the control of the principal industries by cartel schemes,<sup>3</sup> the Japanese Cotton Spinners' Association is so set up as to be able to control the output rates of member mills. The technique of control is to limit the proportion of spindle capacity which may be employed in a given quarterly period. In compliance with this method, spindles have been sealed and extra holidays observed more or less regularly during recent years. On the other hand, the full curtailment rate applies only to spindles producing yarn for sale, it does not apply to spindles manufacturing yarn to be woven by the looms of the same enterprise. It would appear that the principal results of this curtailment scheme are to maintain and strengthen the differential in cost between yarn for the home and that for the export weaving trade. How far real success has been obtained in restricting volume of output seems questionable. On the one hand, many undertakings retain obsolete equipment so as to apply the curtailment rate over a larger base, on the other, the force of the curtailment rate can be more than offset by adding new spindlage <sup>4</sup>

In Germany, after sporadic experiments in short-time working throughout the depression, the Government took over the control of productive capacity in the cotton textile industry beginning in July 1933. A major step was taken in 1934 with the appointment of a textile industry *Leiter* empowered to regulate hours of work and the opening or extension of factories. Later in the same year, with heavily declining production in most branches of textile manufacturing, a decree was issued limiting hours of work (except in cotton, hemp, and jute spinning) to 70 per cent of the daily average for the first six months of 1934. Furthermore, new undertakings were not to be established, or existing undertakings expanded, without express permission from the Minister of National Economy.

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<sup>1</sup> *Manchester Guardian*, 17 June 1936

<sup>2</sup> *Ibid.*, 5 November 1936

<sup>3</sup> Control of Principal Industries Act, 1931

<sup>4</sup> JOINT COMMITTEE OF COTTON TRADE ORGANISATIONS. *The Changing Conditions of World Trade in Cotton and Rayon Goods*. IV "Collective Regulation in the World's Cotton Industries", Manchester, 1936, pp. 23-24

<sup>5</sup> *Faserstoffverordnung* Neufassung, 6 September 1934, *Reichsgesetzblatt*, I, 1934, S. 819 (INTERNATIONAL LABOUR OFFICE, *Legislative Series*, 1934 Ger 1)

Because of improved technology, and the growth of the more looms-per-weaver system, the order of 1934 was not completely successful. It was accordingly supplemented, toward the end of 1935, by a new technique of regulation, the Textile Materials Law<sup>1</sup>. Under the terms of this law, the quantities of specified raw or spun materials consumed by textile undertakings are subjected to administrative control. Textile undertakings, moreover, are released from the obligation to operate 48 hours a week, to the extent that they consume imported raw materials subject to quota<sup>2</sup>.

Italy has also made experiments in regulating output and productive capacity in cotton manufacturing. In 1934, in pursuance of the decree of 1932 providing for the establishment of compulsory syndicates, the Government empowered the Italian Cotton Institute to exercise compulsory control over the spinning section of the industry. The Institute, financed by a levy on imported raw cotton, is authorised to enforce restrictions of output. It has, in fact, enforced all-round rates of curtailment, without acting, however, on the problem of surplus capacity<sup>3</sup>.

In India, in an effort to meet what was regarded as an over-expansion of productive capacity, the Indian Jute Mills Association decided to reduce working hours and seal up a certain percentage of the machines as from March 1931. With the rising tide of world recovery, two-thirds of the sealed machinery was released for productive operations as from November 1935<sup>4</sup>. In Bulgaria a number of industries including cotton and wool textiles have been declared to be "saturated", with the result that permission for the opening of new factories is withheld<sup>5</sup>. In Czechoslovakia the Cabinet on 9 July 1936 issued a legislative decree including provision for the establishment of a National Committee of the Textile Industry, and prohibiting the establishment, extension or reopening of textile undertakings without express permission of the administrative authorities<sup>6</sup>.

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<sup>1</sup> Spinnstoffgesetz, 6 December 1935, *Reichsgesetzblatt*, I, 1935, S 1441

Cartel schemes, of varying scope and efficacy, have been a favourite device for regulating output in many textile manufacturing countries during recent years. In cotton spinning, for example, cartels or their equivalents are functioning or have recently functioned in Belgium, France, the Netherlands, Poland, and Czechoslovakia. As in all cartels, their *modus operandi* has generally been the fixing of a curtailment rate and the allocation of output quotas. Whether because of the weaknesses to which cartels in general are susceptible, or because cotton spinning does not, in the present state of commercial organisation, lend itself readily to cartelisation, these European cartels have almost all tended to break down, indeed, of them all, the Dutch cartel is almost the only successful example<sup>1</sup>

## II — AREAS OF LOCALISED EXCESS CAPACITY

The widespread character of the restriction schemes summarised above does not prove the existence of a worldwide excess capacity to manufacture textiles. It does, however, point to the existence—in some regions and under particular circumstances—of a disequilibrium between potential supply and actual effective demand as a result of which textile undertakings are unable to sell their full output, or to utilise their full capacity, at prices yielding satisfactory profits to entrepreneurs.

The existence of such regions of localised excess producing capacity is one of the most serious problems of the world textile industry. In cotton manufacturing, Lancashire is one such area, New England another, Bombay a third. In the textile industries generally, the several European countries formed after the dissolution of the Russian and Austro-Hungarian Empires are almost all in the possession of productive capacity far transcending the limitations of national markets. Still more generally, the dispersion of textile manufacturing to agricultural regions, and the shift of the industry from areas of higher to areas of lower labour costs, are tending to render redundant a substantial share of the pre-existing capacity in the older industrial areas.

The acuteness of the problem presented by these areas of excess capacity, to the extent that they generate a rigid mass of more or less permanent unemployment—in the United States “stranded

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<sup>1</sup> JOINT COMMITTEE *op cit*, pp 12-19

populations", in the United Kingdom, "special (i.e. distressed) areas"—will be examined in a subsequent chapter<sup>1</sup> In the present chapter, the analysis is concerned, not with the special problems of these areas, but with the general problem of the relations of production and consumption as a whole. The main questions to be answered are as follows

First, as textile manufacturing followed the upswing of industrial activity between 1925 and 1929, at what rate did output increase, what peaks were reached, and what was the state of effective demand?

Second, at the 1929 peak of industrial activity, how did the level of textile production then attained compare with the corresponding level of the immediate pre-war years, and to what extent had world consumption of textile products increased as compared with pre-war years?

Third, is the demand for textile manufactures—by individuals and households, on the one hand, and by industrial and agricultural consumers, on the other—elastic or inelastic, and, if elastic, to what approximate degree?

In the remainder of this chapter, these questions will be discussed in turn

### III — PRODUCTION AND PRICES, 1925-1929

Textile manufactures did not fail to participate in the upswing of the cycle from 1925 to 1929. If the total volume of all primary textile materials available for or used in mill consumption in 1925 be taken as 100, then the corresponding volume in 1929 had risen to 115, that of what might be roughly called "personal consumption" fibres also to 115, and that of the "industrial consumption" fibres to 112<sup>2</sup>. Significantly, almost all of the rise occurred between 1925 and 1927. There was a sharp dip in

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<sup>1</sup> See Chapter XII

<sup>2</sup> The "personal consumption" fibres as here defined include cotton, wool, silk, rayon and flax, the "industrial consumption" fibres, jute and hemp. This



1928, which was immediately followed by a renewed turn upward to the highest levels of the period. This general pattern of a rapid rise in the first three years, then of recession, followed by a final spurt, characterises all textile fibres taken together, as well as the "personal consumption" group taken separately. The "industrial consumption" group, in contrast, reached its high peak in 1927, and thereafter receded considerably.

In their movement toward the top levels of 1929, the textile fibres progressed more rapidly than most of the major foodstuffs, such as wheat, beef, and milk, but at a much slower rate than many of the most important primary materials of industrialism, such as steel, copper, sulphate of ammonia, and hydroelectric power. In short, the textile fibres as a whole expanded in output much as might have been expected of commodities whose consumption uses are mixed, and whose personal consumption uses in particular are necessarily more elastic on the whole than those of the basic foodstuffs. The tables showing the relevant indices are given in Volume II.

This increased production went hand in hand with increasing efficiency of plant and equipment and of labour,<sup>1</sup> of which it was in part the result. Though exact calculations are impossible, it is known that technology during the period under consideration was improving the world over, that in the shift of the industry to new centres much obsolete machinery was discarded, and that in newer as well as in some of the older textile areas rationalisation measures were applied on a large scale.<sup>2</sup>

Equally important, as indicative of the relation of productive capacity to effective demand, is the fact that a considerable proportion of unused capacity overhung the market between 1926 and 1929 in a number of important manufacturing countries. This can be shown, so far as cotton textiles are concerned, by spindles active as percentage of spindles in place. Table 1 presents the percentages concerned.

Detailed information on several branches of textile manufacturing is available for the United States. According to a recent study of productive capacity in the United States,

the use of cotton mill equipment in the five years 1925-1929 was not less than in the pre-war years—in fact it was somewhat greater.

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<sup>1</sup> See Chapters VIII and XII. For figures showing increased machine efficiency in cotton yarn and cloth production in the United States, see Volume II.

<sup>2</sup> See Chapter XII, pp. 297-304.

During this five-year period approximately 20 per cent of our cotton mill equipment on the average was not in use <sup>1</sup>

TABLE 1 — COTTON SPINDLES ACTIVE AS PERCENTAGE OF SPINDLES  
INSTALLED, SELECTED COUNTRIES, 1926-1929

Country	1926	1927	1928	1929
United States	86	89	84	87
China		99	99	
British India	85	86	75	80
Japan	90	81	77	89
U S S R	73			97
Germany	91	96	92	89
France	98	94	96	96
Italy	94	85	90	91

SOURCE *Statistical Year-Book of the League of Nations, 1935-1936*, p 169

It was found in the same study that percentages of utilisation to capacity for wool manufacturing, during the period 1925-1929, were as follows cards, 73.2, combs, 67.1, woollen spindles, 70.9, worsted spindles, 61.9, broad looms, 59.9, narrow looms, 59.5, and carpet-and-rug looms, 63.0 <sup>2</sup> As regards silk, however, it was found that "there is not enough capacity to satisfy the needs of the industry if it were restricted to the single-shift operation, which is regarded as normal in most industries", nevertheless, on the single-shift basis, the average ratio of utilisation in the period 1925-1929 was 96.1 per cent for broad looms and 60.4 per cent for narrow looms, while on a double-shift basis spinning spindles were operated at 64 per cent, utilisation <sup>3</sup>

At the same time, the available evidence brought together in the section which follows <sup>4</sup> on the relatively moderate rise in the actual or available mill consumption of textile fibres during the prosperity years suggests a somewhat sluggish development of demand as compared with the probable rates of growth of productive capacity

In view of all the evidence of rising output, increased machine productivity, overhanging mill capacity and sluggish demand, it would be only reasonable to suppose that the levels of textile manufacturing activity reached in the later phases of the cycle

<sup>1</sup> E G Nourse and associates *America's Capacity to Produce*, Washington, 1934, pp 208-204

<sup>2</sup> *Ibid*, p 207

<sup>3</sup> *Ibid*, pp 211-212

<sup>4</sup> See pp 164-165

exceeded in some measure the limits of effective demand. This supposition is strongly supported by the available statistics of price movements. Prices of textile manufactures tended to decline heavily between 1925 and 1929. To a large extent, these declines were due to falling costs of raw materials, which, together with accessory materials, generally average from half to over two-thirds of gross sales value in most branches of textile manufacturing,<sup>1</sup> and to increased efficiency of production. In sum, however, the prices of textile manufactures declined at such a rapid rate relative to the prices of raw fibres that mill margins tended to contract.

The mill margin, or the difference between the cost of the raw material required to make up a given quantity of cloth, and the selling price of that same volume of cloth, is one of the basic financial factors in textile manufacturing. It is the mill margin which supplies the fund out of which the textile entrepreneur pays for labour, power, administrative expenses, taxes, depreciation, etc., and from which he takes the net profits, if any. Although widening mill margins are not synonymous with profits, or narrowing margins with losses, nevertheless continued shrinkage of mill margins in the course of a few years may well give rise to certain financial difficulties.

TABLE 2 — AVERAGE PRICES AND MARGINS IN COTTON SPINNING,  
UNITED KINGDOM, 1913-1936

Year	Prices in pence				Estimated spinning margins pence per 1 lb yarn	
	American cotton and yarn		Egyptian cotton and yarn		American	Egyptian
	1 12 lb American cotton	1 lb 32's cop twist yarn	1 12 lb Egyptian cotton	1 lb 60 s cop twist yarn		
1913	7 56	10 56	10 95	17 50	3 00	6 55
1924	18 18	25 88	25 44	36 64	7 55	11 20
1925	18 84	20 99	30 26	39 89	7 15	9 63
1926	9 92	15 47	17 01	28 69	5 55	11 68
1927	10 27	15 36	18 08	28 17	5 09	10 09
(1936)					(4 0)	(6 3)

SOURCES — UNITED KINGDOM, COMMITTEE ON INDUSTRY AND TRADE (BALFOUR COMMITTEE) *Survey of Textile Industries, 1926*, pp. 139-140, for 1936, *The Economist*, London, 28 November 1936, p. 102. Prices and margins are averages for the six months question 1936 margins before November 1936 but values are also the low water allowance notably for Egyptian cotton are off by the yield of 100 lb to 100 yds.

<sup>1</sup> See Chapter VIII, pp. 204-207

In the United Kingdom, between 1924 and 1927, as a result of differential declines in the prices of raw cotton and of cotton yarn, spinning margins, at least in the American section, were definitely narrowing, as shown in table 2

In 1927, moreover, the United Kingdom index of prices for all cotton cloths (1913 = 100) stood at 164, as compared with 234 three years earlier. After a small rise to 169 in 1928, the index declined again to 166 in 1929 (during the depression period which followed it fell very rapidly). For British weaving margins between 1924 and 1927, the Balfour Committee reached no definite conclusions.<sup>1</sup>

The combined spinning-weaving margins in United States mills very definitely shortened during that period in response to differences in rate of decline between prices for raw material and finished products. Such narrowed mill margins in United States cotton weaving affected every variety of cloth, in all cases the narrowing was considerable. This is shown in table 3.

TABLE 3 — MILL MARGINS, SELECTED TYPES OF COTTON CLOTH,  
UNITED STATES, 1925-1929  
(cents)

Year	Combed lawn	Voile	Broad cloth, combed	Broad cloth, carded	Printed cloth	Sheeting
1924	71.1	62.3	64.7		24.6	15.5
1925	70.0	54.2	51.1	26.3	24.0	17.0
1926	74.2	55.2	51.0	27.7	21.2	13.4
1927	71.5	55.8	45.5	10.7	20.5	11.7
1928	66.6	50.5	44.2	21.4	18.7	12.3
1929	53.6	45.7	43.0	17.3	16.6	11.0

SOURCE: *Cabinet Committee Report*, pp. 76-79. Figures are for December of years given, they refer to pound price of cloth minus cost of cotton in one pound of cloth.

In Germany, finally, between 1924 and 1929, the mill margins of both cotton yarn and cotton cloth were also subject to severe compression, as shown in Table 4.

For Germany, the information on cotton can be supplemented by data on wool and linen. Between 1924 and 1929, weaving

<sup>1</sup> P. B. P., *Report on the British Cotton Industry*, 1934, p. 31, *Balfour Committee Survey*, p. 137.

TABLE 4 — MILL MARGINS, REPRESENTATIVE COTTON YARNS AND CLOTHS, GERMANY, 1924-1929

(in Reichsmarks)

	1924	1925	1926	1927	1928	1929
Yarn	1 17	1 37	0 94	0 96	0 81	0 76
Cloth	1 33	1 72	1 48	1 58	1 41	1 21

SOURCE — INSTITUT FÜR KONJUNKTURFORSCHUNG *Vierteljahrshefte*, 5 Jahrgang (1930), Heft 2, Teil B, p. 39

margins in the manufacture of worsted tissues fluctuated considerably, with extreme downward pressure during the first three years, and considerable recovery thereafter. In linen spinning, margins were weakening more or less continuously, and in weaving were retained until 1928, and then began to decline. These movements are shown in table 5.

TABLE 5 — MILL MARGINS, REPRESENTATIVE WORSTED AND LINEN MANUFACTURES, GERMANY, 1924-1929

(in Reichsmarks)

	1924	1925	1926	1927	1928	1929
Worsted cloth	10 6	8 1	7 3	10 0	12 0	10 9
Flax yarn	2 7	2 6	2 0	2 2	2 0	2 0
Linen cloth	8 1	9 0	8 5	8 3	8 9	8 6

SOURCE — INSTITUT FÜR KONJUNKTURFORSCHUNG *Vierteljahrshefte*, 5 Jahrgang (1930), Heft 2, Teil B, pp. 40, 41

Although movements of mill margins cannot be determined thereby, it should be noted that the prices also of all wool manufactures, and of raw silk and rayon yarn, both important semi-manufactures, were falling heavily throughout the period of industrial prosperity as is shown by figures in Volume II, Part I.

The price behaviour of the various textile materials during the years of prosperity paralleled the price movement of other commodity groups. It would be wrong, however, to conclude from this that textile prices presented no special problem. What is more probable is that, judging from output, capacity, and price movements, the plant and equipment of the textile industry were

definitely turning out a volume of output which pressed down upon prices and mill margins together

#### IV — THE CONSUMPTION OF TEXTILES

As suggested above, the effective demand for textiles during the post-war period was probably rising at a much slower rate than production. In any case, at the peak levels of output in 1928-1929, the total consumption of textile fibres for all uses was only a little larger on a per capita basis than the consumption of 1909-1913, the increase was in fact so moderate that it might even reasonably be supposed, allowing for increased industrial and agricultural uses, that personal and household consumption per capita may have remained on the whole stationary, though increasing in some countries.

It is possible to compare levels of per capita consumption between 1909-1913 and 1928-1929 for the world as a whole and for the United States separately as regards most of the major textile fibres, for Japan, it is possible to make a similar comparison as regards cotton and wool, and for India as regards cotton cloth alone. In presenting these comparisons, it must be emphasised that the figures for the United States, India and Japan are much more reliable than those for the world as a whole. Population totals for these three countries are known more or less exactly, totals for the world as a whole represent only estimates.

So far as the available production and population data for the world as a whole are trustworthy, it may be calculated that in 1909-1913 the per capita consumption of all textile fibres averaged 4.95 kilograms and in 1928-1929, 5.47 kilograms—a net increase of about one-half a kilogram per person. Taking 10 linear yards per kilogram as a rough conversion factor, the average inhabitant of the world consumed just before the war 50 yards of textile manufactures yearly, and his counterpart at the height of post-war prosperity, 55 yards, a net increase of only 5 yards. These estimates, however, summate consumption for personal and household uses with that for agricultural and industrial purposes. Unfortunately, the data permit only partial differentiation—in particular, the changing distribution of cotton between these two groups of uses is unknown. So far as any differentiation can be made at all, the per capita consumption of textile fibres consumed largely in personal and household uses rose from 3.69 kilograms (or about

37 yards) yearly, to 4 16 kilograms (or about 42 yards) yearly, that of fibres consumed almost entirely in industrial or agricultural uses from 1 26 kilograms (about 13 yards) to 1 31 kilograms (substantially the same yardage) <sup>1</sup>

It is known, however, that between 1913 and 1929 almost all of the textile fibres, notably cotton and silk, were being used to an increasing extent as the raw materials for such non-personal consumption products as tyre fabric, sacks and bags, belting, gas masks, parachutes, covering for electrical wires, etc. It is in the light of this known but indeterminate tendency that the growth in per capita consumption of the individual fibres must be considered. Consumption of raw silk—still mainly a personal-use fibre in the luxury or semi-luxury classes—manifests, unequivocally, rising standards of living, the increase was almost twofold, from 16 grammes to 31 grammes per capita <sup>2</sup>. Consumption of raw wool—also a personal-use fibre for higher income groups in the main—likewise expanded notably from 780 grammes to 900 grammes. That of raw cotton—in its personal uses serving mostly low income groups and the most mixed of the fibres in its uses—rose in contrast only moderately from 2 56 to 2 85 kilograms, suggesting the probability of an actual decline on a per capita basis of use in clothing and furnishings alone. In this connection, two other facts are significant. First, per capita consumption of flax—for the most part a personal-use fibre, and, outside of the United States, primarily one for low or moderate income groups—hardly changed during the period. Second, of the fibres competing industrially with cotton, consumption of jute rose proportionally less than that of cotton, while that of hemp actually declined <sup>3</sup>.

In any event, comparing 1929 with 1913, the rates of increased absolute consumption for the several textile fibres were, with the exception of rayon and silk, notably lower than the corresponding

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<sup>1</sup> All the figures here given on per capita consumption of textiles are summarised from table 6 below.

<sup>2</sup> It is impossible to estimate how far this increase reflected increased purchases by individuals already wealthy enough to buy silk tissues, and how far it reflected the improving income status of wage earners and salaried employees in the lower ranges of income. Nor can it be estimated how far the increase reflected increased consumption of silk by the electrical and aviation industries.

<sup>3</sup> Of course the most astounding rate of increase was that of rayon. Neither in 1913 nor in 1929, however, were the absolute volumes of rayon of any consequence as compared with those of any fibre except silk. Much of the increased use of rayon, moreover, may have been achieved at the expense of reduced use of cotton, wool, silk, etc.

rates for most other primary commodities except the basic food-stuffs, this is shown in one of the tables in Volume II, Part I. In general, consumption indices exhibit the usual differences between textile fibres and the other primary commodities, that is, the changes in textile consumption are located between the crude materials of heavy industry and the major foodstuffs of inelastic demand. So far as the individual textile materials are concerned, the variations in absolute and per capita consumption for the period in question are presented in table 6.

TABLE 6 — WORLD PRODUCTION OR CONSUMPTION OF TEXTILE FIBRES, 1909/1913-1928/1929

	In thousand metric tons			In kilograms per person		
	1909-13	1925-26	1928-29	1909-13	1925-26	1928-29
Cotton	4,583	5,247	5,593	2 56	2 72	2 85
Wool	1,392	1,582	1,765	0 78	0 82	0 90
Flax	578	581	573	0 32	0 30	0 29
Silk	29	50	60	0 016	0 026	0 031
Rayon	11	91	180	0 006	0 047	0 092
<i>Total "personal consumption" fibres</i>	6,593	7,551	8,171	3 69	3 92	4 16
Jute	1,546	1,627	1,842	0 87	0 84	0 94
Hemp	705	745	730	0 39	0 39	0 37
<i>Total "industrial agricultural" fibres</i>	2,251	2,372	2,572	1 26	1 23	1 31
<i>All above fibres*</i>	8,844	9,923	10,743	4 95	5 15	5 47

Sources: VIII Consumption of Cotton from *Cotton Trade Statistics*, 1936, table 71, and *Halfour Committee Survey of Textile Industries*, 1928, p. 154. Other data from *Statistical Year-Books of the League of Nations*, 1927-1936, production of the raw fibre for wool, flax, jute, hemp, for silk, output of raw silk for rayon, output of rayon yarn.

The more exact figures available for the United States on per capita use of the major textile fibres confirm, by and large, the less exact figures here cited for the world as a whole. In summary, the United States data reveal that the total per capita use of all textile fibres between 1911-1914 and 1927<sup>1</sup> rose by just over

<sup>1</sup> In the United States, 1927 was the peak year in textile output for the post-war period. For comparative 1929 figures, see Table 7 below.



12 per cent and, excluding jute, by about 14 per cent. To consider individual fibres, the per capita use of cotton expanded by not quite 13 per cent, of silk, by more than 100 per cent, of rayon, 1,900 per cent, of jute, between 3 and 4 per cent, while the use of wool per person declined by almost 17 per cent. Like the world data, the figures for the United States drive home the conclusion that rising standards of living between 1913 and 1929 were expressed only to a limited degree in the consumption of textile products. Table 7 presents the statistical picture for the United States.

TABLE 7 — MILL CONSUMPTION OF MAJOR TEXTILE FIBRES,  
UNITED STATES, PER CAPITA, 1911-1929

(Kilograms per person)

Year	Lint cotton	Rayon yarn	Raw silk deliveries	Scoured wool	Raw jute yarn and fabric	Total	Total minus jute (a)
1911-1914 average	12.2	0.02	0.14	1.2	2.9	16.4	13.5
1927	13.8	0.4	0.3	1.0	3.0	18.4	15.4
1929	12.8	0.5	0.8	0.9	3.0	17.5	14.5

(a) Jute may be distinguished because its uses are entirely industrial and agricultural, rather than personal or household.

SOURCE: Compiled from *Cabinet Committee Report*, 1935, p. 82. Compilations neglect, however, exports and imports of semi-manufactures and manufactured goods. Nevertheless, the volume of textile imports and exports of the United States is extremely small compared to total domestic production.

In striking contrast to the moderate per capita increases shown for the world as a whole and for the United States separately is the considerable expansion in the per capita consumption of wool in Japan between 1914 and 1929. As for cotton, the rise in per capita use between 1914 and 1927,<sup>1</sup> although moderate as compared with wool (in one case the index rose to 277 and in the other to 122) was substantially greater than in the United States. Both increases undoubtedly reflect the higher standards of living which developed in Japan during the post-war years, the more than twofold increase in the case of wool reflects as well modified habits of

<sup>1</sup> The 1927-1929 peak in cotton consumption was reached in Japan as in the United States, in the earlier year. However, the highest peak of the whole post-war period was reached for cotton in 1922, for wool in 1933.

clothing consumption Table 8 gives the movements of the textile indices involved, and compares them with those of other important personal-consumption commodities

TABLE 8 — INDICES OF PER CAPITA CONSUMPTION, JAPAN,  
SELECTED COMMODITIES, 1924-1929  
(1914 = 100)

Commodity	1914	1922	1927	1928	1929
Coffee	100	411	996	1,176	1,323
Cigarettes	100	208	566	639	694
Pork	100	221	206	257	304
Wool	100	256	272	277	229
Apples	100	201	204	255	266
Eggs	100	214	219	233	248
Fish	100	197	214	219	223
Sugar	100	191	215	216	223
Meat	100	163	164	176	186
Wheat	100	163	179	167	151
Beef	100	164	148	149	146
Green tea	100	136	137	140	144
Fruits	100	120	136	140	136
Oranges	100	129	149	139	114
Rice	100	115	114	117	114
Cotton (a)	100	136	122	121	113
Cereals	100	110	107	109	104
Vegetables	100	93	94	90	90

(a) Consumption for domestic use

SOURCE T. UYEDA and T. ENOKUCHI *Cost of Living and Real Wages in Japan, 1914-1936*, Tokyo, 1936, pp. 27-29

From certain points of view, the data on per capita consumption for Japan are the most revealing of all in that they contrast textiles with other commodities of individual use. Moreover, they cover a period during which standards of living in a major industrial country were rising with marked rapidity. In the course of this rapid rise, although the per capita use of cotton goods did mount, it was one of the laggards in rate of increase. On the other hand, the per capita use of woollen manufactures was one of the leaders in the general advance, although largely because of changing consumer preferences which benefited wool at the expense, in large part, of cotton and silk. Thus the findings for Japan are consistent with the findings for the world as a whole and for the United States separately.

In India, the per capita consumption of cotton piece goods during the years 1926-1929 averaged 15.6 yards, a very slight increase

indeed as compared with the corresponding average of 15.3 yards during the years 1911-1914. The increase between 1913-1914 and 1927-1928, the years of highest consumption was also very slight. The data are shown in table 9.

TABLE 9 — PER CAPITA CONSUMPTION, COTTON PIECE GOODS, INDIA, 1911-1914 AND 1926-1929

	Indian production (a)		Retained imports	Total available for consumption	Yards consumed per capita (b)
	Mill	Handloom			
	(million linear yards)				
1911-1912	1,018	1,044	2,262	4,324	13.7
1912-1913	1,095	1,040	2,848	4,983	15.8
1913-1914	1,034	1,068	3,042	5,144	16.3
Weighted average					15.8
1926-1927	2,258	1,296	1,758	5,312	15.9
1927-1928	2,356	1,292	1,935	5,583	16.5
1928-1929	1,893	1,116	1,912	4,921	14.4
Weighted average					15.6

(a) The exports of Indian-made goods assumed to be all mill-made. Returns of population, 1911 — 315,156,000, 1921 — 318,942,000, rates of increase, 1.2 per cent. between 1911 and 1921 and 10.6 and 1931, interpolated by assuming constant yearly increments, fiscal years by dividing population of 1911 into total available for etc.

SOURCE — GANDHI *The Indian Cotton Textile Industry*, 1930, pp. 84-85

## V — THE EXTENT OF POTENTIAL DEMAND

Even if large enough, from the commercial point of view, to press down prices and mill margins together and to condemn a part of plant and equipment to idleness, was the volume of textile output in 1927-1929 sufficiently large, from the social point of view, to satisfy the true needs of the world for clothing and furnishings, for tyres and sacks, for cordage and belting, etc.? If the flow of textile manufactures during that period strained close against the limits of *effective* demand, did it also come close to meeting the *potential* demand based on adequate standards of living? On the basis of available statistical data, an approach may be made to an approximate answer to these questions.

TABLE 10 — ESTIMATED COTTON PIECE GOODS CONSUMPTION PER HEAD IN THE PRINCIPAL MARKETS, 1929, BY WEIGHT, YARDAGE, AND VALUE

	Kilograms	Linear yards	£
United States		64 0 (a)	1 78
Netherlands	(5 9)		
Switzerland	(5 3)		
New Zealand			1 28
Belgium	3 6		
Canada		37 7	1 19
Australia			1 10
United Kingdom (b)		(35) (a)	1 03
France (c)	(2 2)		
Sweden	(3 6)		
Germany (d)	3 4		
Argentina	(3 2)		
Malaya		30 6	0 79
Denmark	(3 0)		
Austria	3 0		
Japan		21 4	0 50
Italy	2 1		
Union of South Africa			0 57
Egypt		(19 1)	(0 48)
Brazil		18 9	
Turkey	(1 7)		0 37
Iraq		16 9	0 30
Yugoslavia	(1 6)		
India		16 1 (e)	
Greece	(1 5)		(0 44)
Iran	(1 4)		
Sudan		12 6	0 21
Ceylon		(12 1)	(0 41)
Poland	(1 2)		
Nyasaland		11 8	0 18
Kenya and Uganda		11 8	0 16
Netherlands Indies		10 4	0 31
China		10 0 (e)	(0 28)
Tanganyika		7 6	0 19
French West Africa	0 7		0 21
Bulgaria	(0 6)		
British West Africa		5 9 (a)	0 20

(a) Square yards

(b) Yardage of 1934 value figure of 1930 consumption at 1929 prices. These figures used instead of available 1930 figures (22 7 square yards, £0 62) as 1930 consumption and prices were abnormally depressed

(c) 18 0

(d) 10 4

(e) Including home-loan production. India, 4 4 yards per head, China, 7 1 yards per head.

indicate clearly the existence of very large differences among regional levels of textile fibre use. In 1929, for example, the average inhabitant of the United States was using four times more cotton (personally and industrially) than the average inhabitant of the world, ten times more silk, three times more jute, five times more rayon, and an equal amount of wool—in sum, at least from three to four times more of all textile fibres taken together. These calculations are here presented, not to draw an invidious comparison between standards of living in the United States and in other countries, but to point to the heart of the problem of “overproduction-underconsumption”, which lies in the relation of consumption standards to national and family income.

An extensive international comparison of consumption of cotton piece goods in most of the principal markets is fortunately available in this connection for 1929. It is presented in table 10.

At the top of the scale of per capita consumption in the table stand countries of advanced industry and agriculture which are themselves great exporters of cotton textiles. In the middle of the scale are found India, the world's greatest importing market, and some of the leading markets of the Balkans and the Near East. At the bottom of the scale stand the vast importing markets of the Netherlands Indies and colonial Africa, together with the huge consumption market of China. When the consumption levels reached in India, the Balkans and the Near East are compared with the higher ones attained in the United States, the British Dominions and in Western and Central Europe, the resulting spread covers a twofold to fourfold range, from the bottom to the top of the scale, the spread is between eightfold and tenfold.

It might be argued that a large part of this difference is to be explained by climatic factors and differences in custom, and another large part by the comparative development of heavy industries which consume coarse cotton fabric in large quantities. Be this as it may, per capita consumption in India and several Near Eastern countries is seen to be from 25 to 300 per cent higher than in other countries of not dissimilar climatic conditions, such a spread is far too great to be explained, except partially, by differences in the relative balance between personal and industrial uses of cotton cloth.

It may reasonably be assumed that especially in such regions as the Sudan, Ceylon, Nyasaland, Kenya and Uganda, the Netherlands East Indies, China, Tanganyika, French West Africa and British West Africa, as well as in India, the relatively lower per

capita consumption of cotton piece goods is definitely related to low incomes and lack of purchasing power. In this connection it should be recalled that exports of cotton piece goods are destined, for a very large part of their volume, to the "colonial" and "native" populations of the world. Many of the difficulties of the major industrial countries exporting cotton cloth would, in fact, be considerably eased if effective steps could be taken to increase the purchasing power of such "colonial" and "native" populations, whether by the augmentation of incomes, by lower prices for cloth or by a combination of both.

That demand for textile manufactures increases as the scale of national or regional income rises is one of the most important conclusions which the foregoing analysis has suggested. This conclusion is further confirmed by available family budget studies, which indicate that in all countries studied the demand for textile manufactures as a function of family income is quite elastic. Table 11 presents the results of a number of family budget studies published in recent years by the International Labour Office.

Each of the countries considered in the table shows virtually the same movements of expenditure on clothing account. As total expenditure per consumption unit or per family rises, the corresponding absolute amounts spent on clothing also rise, and by substantial amounts. Most striking are the similarities in the pattern of expenditure for such Far-Eastern countries as China and Japan on the one hand, and for such a Central European country as Czechoslovakia on the other. In both China and Japan, not only the absolute but also the relative expenditures on clothing rise sharply as family income moves upward. According to the Chinese data, family expenditures for clothing increase threefold as total family expenditure is doubled. According to the Japanese figures, a family's clothing purchases rise over 150 per cent with a doubling of total expenditures for all purposes. In Czechoslovakia clothing purchases per consumption unit more than triple as average total expenditure rises 125 per cent. Although the proportionate expenditures for clothing remain more or less constant or even decline as family income rises in Germany, Belgium and Sweden, the absolute amounts of clothing purchases show strong upward trends.

To be sure, the meaning of the absolute and percentage expenditures for clothing shown in table 11 must vary with the ranges of income covered in each particular case. Thus the lowest ranges of the income scale are represented in the table by

China and Japan, and considerably higher ranges by Germany, Belgium, Sweden and Czechoslovakia. Generally speaking, the figures cover the range from the lowest paid wage earners to salaried employees of modest status. Accordingly, the conclusion that demand for clothing is quite elastic is confirmed in particular for the lower ranges of income.

TABLE 11 — EXPENDITURES ON CLOTHING, VARYING INCOME LEVELS,  
SELECTED COUNTRIES

Country	Average expenditure per consumption unit or per family	Percentage of total expenditure on clothing	Amount spent on clothing
Germany	704 RM	13.8	97 RM
(1927-1928, per consumption unit)	893 "	13.5	121 "
	1,075 "	14.3	154 "
	1,295 "	13.3	172 "
	1,696 "	13.5	229 "
Belgium	14,385 Fr	6.7	964 Fr
(1928-1929, per family)	18,777 "	4.5	845 "
	22,259 "	4.8	1,068 "
	25,029 "	5.0	1,251 "
	34,995 "	3.0	1,050 "
China (Shanghai)	337 \$	6.2	21 \$
(1929-1930, per family)	385 "	6.4	25 "
	446 "	7.4	33 "
	566 "	8.5	48 "
	668 "	8.9	59 "
	796 "	10.5	84 "
Japan	610 Yen	9.4	57 Yen
(1933-1934, per family)	799 "	10.7	85 "
	984 "	11.9	117 "
	1,185 "	12.3	146 "
Sweden	2,033 Kr	14.0	285 Kr
(1933, per consumption unit)	3,543 "	13.2	468 "
	5,670 "	12.4	703 "
Czechoslovakia	4,830 Kč	13.2	638 Kč
(1929-1930, per consumption unit)	7,229 "	14.6	1,055 "
	10,994 "	18.1	1,990 "

SOURCE — INTERNATIONAL LABOUR OFFICE Year-Book of Labour Statistics, 1935-1936 table XVII, p. 178

That the principle holds substantially true also in lower income ranges in the United States, the country of the greatest per capita

consumption of textile manufactures, is shown by several recent studies of the money disbursements of wage earners in New England, itself one of the great textile manufacturing areas of the United States. Table 12 presents data for communities in the State of New Hampshire and for the City of Boston.

TABLE 12 — EXPENDITURES ON CLOTHING AND FURNISHINGS, VARYING INCOME LEVELS, SELECTED COMMUNITIES, UNITED STATES

Average total expenditure		Percentage of total expenditure spent		Total expenditures	
Per consumption unit	Per family	On clothing	On furnishings and equipment	On clothing	On furnishings and equipment
<i>Various New Hampshire towns, 1933-1934</i>					
	\$			\$	\$
Under \$400	1,055	10.6	2.9	112	31
	1,124	10.8	2.8	121	31
	1,128	11.2	3.1	126	35
	1,327	13.3	3.8	176	50
Over \$400	1,285	9.2	5.6	118	72
	1,378	10.3	3.6	142	50
	1,469	11.4	5.5	167	81
	1,473	10.5	3.3	155	49
<i>City of Boston, 1934-1935</i>					
Under \$300	1,323	9.5	1.2	126	16
\$300-400	1,388	9.4	1.9	130	26
\$400-500	1,559	10.2	2.6	159	41
\$500-600	1,728	9.5	3.1	164	54
\$600-700	1,661	10.5	3.4	174	56
\$700 and over	1,943	10.1	3.7	196	72

SOURCE: UNITED STATES DEPARTMENT OF LABOR, BUREAU OF LABOR STATISTICS. *Monthly Labor Review*, March 1936, p. 561, September 1936, p. 784.

To recapitulate, the budgetary studies relating to Germany, Belgium, China, the United States, Japan, Sweden and Czechoslovakia all lead to the same results. At the lower ranges of the income scale, in any event, the *potential* demand for textile manufactures is very great. If ways and means could be found to bring textile commodities within the effective reach of wage workers, salary earners, and agricultural workers of the lowest income status, the demand for textile manufactures would swell out far beyond the highest levels attained in 1927-1929.



## VI — CONCLUSION

In the end, then, the analysis points to the existence of a sort of paradox. Although the demand for textiles expands considerably with an increase in income, the total effective demand for textile manufactures at the period of highest prosperity grew but moderately as compared with the immediate pre-war years. Clearly, on the basis of the evidence, textile manufacturing may be described from the commercial point of view as an industry of over-production. From the social point of view, however—that is, from the point of view of individual and family requirements—it may be characterised as an industry of under-consumption. As for the solution of the paradox, it lies in measures and policies which would, the world over, enlarge real income and the purchasing power of the mass of the population.

To say this is by no means to pass final judgment on the experiments in curtailment of output and of productive capacity that have been actually undertaken. In some countries or districts, curtailment of output may be a wise formula, in the short run, to preserve the structure of prices and wage rates, of mill margins and family earnings, from complete collapse. In other countries or districts, curtailment of capacity may be a wise formula, in the long run, to offset the permanent loss of exports or domestic markets enjoyed in the past. It is an altogether different matter, however, to argue that the world textile industry as a whole should hold down output or diminish productive capacity. To evaluate this argument, the accruing “commercial” benefits—sustained prices, profit margins and personal incomes for some people—must be balanced against the accruing “social” losses: lessened consumption of textile products by wage workers, low-salaried employees and the agricultural population, reduced earnings and more or less permanent unemployment for a large part of the industry’s present labour force.

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## CHAPTER VIII

### FACTORS IN INTERNATIONAL COMPETITION

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Owing to the shifts and changes in textile production and trade, and to the relationships of productive capacity to effective demand, as described in the two preceding chapters, international competition in the world trade in textiles has become increasingly intense and critical in recent years. For a complete picture of the industry in its international aspects, it is thus necessary to evaluate the competitive advantages which some countries enjoy and the disadvantages from which other countries suffer, as well as to examine the practices and policies by means of which various countries have tried to gain or retain for themselves as large a share as possible of the total world market.

In this chapter, attention will be centred on four principal factors underlying international competition in textile products: (1) access to or exclusion from particular markets, (2) currency devaluation, (3) commercial organisation, and (4) costs of production with emphasis on raw material and labour costs.

#### I — ACCESS TO MARKETS

In Chapter II evidence was brought forth to indicate the importance of textile production and of the foreign trade in textiles to the national economy of various countries<sup>1</sup>. The most recent figures indicate that Japan exports over a third of the total value of all its textile manufactures and the United Kingdom over a fourth. As for Germany, although the global ratio of exports to production has fallen heavily in recent years, it was as high as 24 per cent in 1928<sup>2</sup>. In short, all the evidence points

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to the importance of access to foreign markets as the basis of continued prosperity in the textile industries of most of the great textile producing countries

TABLE 1 — SHARE OF HOME MARKET HELD BY DOMESTIC PRODUCERS OF COTTON MANUFACTURES, SELECTED COUNTRIES, RECENT YEARS (by volume)

Country	Yarn	Piece goods		
	Per cent of consumption domestically produced	Estimated consumption (a)		Per cent of consumption domestically produced
		Total	Imported	
United States (1933)	99.9 (b)	7,625	41	99.5
India (1935)	96.0 (c)	4,405 (c)	1,033	76.5 (c)
China (1934)	99.6 (c)	998 (c)	125	87.5 (c)
U S S R (1934)		2,382		(99.9)
Japan (1935)	99.9	2,184	1	99.9
Germany (1928)	95.0 (d)	2,139	152	92.9
United Kingdom (1934)	99.8	1,491	23	98.5
Italy (1934)	99.5 (b)	888	7	99.2
France (1932)	99.7	780	8	99.0
Brazil (1929)		749	49	93.5
Netherlands (1933)	72.5 (e)	352	37	89.5
Canada (1934)	95.2 (b)	286	72	74.8
Belgium (1933)	95.2	239	17	92.9
Austria (1929)	82.1			52.0
Rumania (1934)				88.1
Switzerland (1929)	81.8			88.8

(a) Million yards or thousand quintals

(b) 1929

run yarn and hand-woven cloth in 1929 hand loom production over 25 per cent of total consumption in India, and over 70 per

(d) 1933

(e) 1934

SOURCE: JOINT COMMITTEE OF COTTON TRADE ORGANISATIONS (1) *Cotton Trade Statistics*, 1936, tables 73-97, 131, 149-161, 179, 180, 194, 212-249, (2) *The Commercial Policies of Foreign Countries I*, Statistical Appendix, table 5, and II, Statistical Appendix, table 5

On the other hand, the importance of the home market must not be underestimated. Thus, for the cotton textile industry of India, China, Germany and the United States, the home market is practically everything, for Belgium, Italy and France the home market is several times more important than the foreign market,

even in Japan and the United Kingdom, domestic purchases of cotton cloth are from 60 to 80 per cent of the volume of home manufactures sold abroad. In the light of these facts, it is very significant that almost all of the great cotton textile producing countries dominate, when they do not entirely monopolise, their home markets for cotton textile products. The approximate shares of the home market enjoyed by cotton yarn and cloth of domestic production in a number of countries are given in table 1.

Despite the importance of home markets, access to or exclusion from foreign markets is a matter of great moment to the textile industry of most countries. Such access or exclusion bears directly on costs of production. The larger the market available on favoured or equal terms to the textile industries of particular countries, the greater their potential volume of sales, increase in volume of sales makes feasible full-time instead of part-time operation of plant and equipment, and thus results in lower overhead costs per unit of output.

The question of access to or exclusion from special markets will be considered here with regard to Japan, the United Kingdom, India, France, the United States and Germany. This list of countries is large enough, and of a sufficiently representative character, to justify the hope that the resultant findings may have a wider significance. Before passing, however, to the detailed problems of each country specified, certain general principles may usefully be stated.

The status of any market for textile manufactures (as for other commodities) is the outcome of the operation, singly or combined, of five major factors: (1) the height of the general duty rates applicable to imports, (2) the preferential tariff rates, if any, granted to or operative against particular suppliers, (3) discriminatory or non-discriminatory quantitative limitations of all kinds, from quotas to embargoes, (4) foreign exchange control whether to reduce imports generally, to limit them to particular sources, or both, and (5) over-valuation or under-valuation of the currency in relation to other currencies. All five of these factors have been operating in varying degrees in different countries since 1931-1932 at least.

Non-discriminatory tariffs uncomplicated by quotas or exchange restrictions may be dismissed briefly. In such countries as the United States, Japan and the United Kingdom, the duties on imported textiles may be described as "high", in such countries

as British East Africa, Belgian Congo, 'Iraq and Siam as "low" <sup>1</sup>

India and the British Dominions are the outstanding examples of countries where preferences in favour of a particular supplier—in this case the United Kingdom—are superimposed on protective duties in favour of home industries. In India (cotton goods) and in Australia (cotton and rayon goods), moreover, imports from Japan are subject to quotas scaled in accordance with Japan's purchases of Indian raw cotton in the one case and of Australian raw wool in the other. As for Egypt, although the basic tariff rate is low, Japanese imports of cotton goods are surcharged highly to the benefit in the main of the United Kingdom <sup>2</sup>

The major markets where, despite moderate tariff duties, discriminatory quotas are in force, are the British Crown Colonies (with certain exceptions), the French Colonies, the Netherlands East Indies, and the Philippine Islands. In all four cases, Japan is the source of supply against which the quotas are chiefly directed, the countries which benefit from the restrictions are the United Kingdom (Crown Colonies and, to some extent, the Netherlands Indies), France (its own colonies), the Netherlands (the Netherlands Indies), and the United States (the Philippine Islands) <sup>3</sup>

Exchange restrictions reach their most extreme developments in Central and South Eastern Europe and in South America. In almost all cases, the restrictions are intended, not merely to hold down imports below a stated level, but also to discriminate among the sources from which such shipments can be obtained. Thus, Argentine exchange restriction in fact operates in favour of the United Kingdom, and against Japan and the United States, in other South American countries, and in almost all of the Balkan countries, it is Germany above all which benefits from the control measures to the detriment of all other potential suppliers. In certain extreme cases, for example Greece and Rumania, exchange control is superimposed on import quotas together with very high basic tariff rates: here the policies of bilateral trade come to their fullest fruition <sup>4</sup>. In general, moreover, exchange control automatically discriminates in favour of those countries with which the controlling country has an active trade balance.

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<sup>1</sup> A large sample of representative tariff rates is given in Volume II, Part I

<sup>2</sup> For fuller discussion, see below

<sup>3</sup> For fuller discussion, see below

<sup>4</sup> For fuller discussion, see below.

As for the fifth factor in determining the status of textile markets—under-valuation or over-valuation of particular currencies—its effects are discussed at some length subsequently in this chapter

### *Restrictions on Japanese Exports*

It has been shown at several points in this Report that the entire national economy of Japan pivots on trade in textile raw materials, semi-finished manufactures and fully manufactured products. More than in the case with any other country, Japan's ability to improve her standard of living has been dependent in recent years upon exports of textile products on a large scale. In fact, it would be impossible to understand the remarkable expansion of Japan's exports of cotton, wool, silk and rayon tissues since 1931-1932 without taking into account the fundamental re-orientation in that country's economic life which was brought about by the drastic collapse between 1929 and 1932 in the price of raw silk, the most important Japanese export commodity until then.

During the pre-depression period, as to-day, Japan had to import many essential raw materials as well as substantial amounts of foodstuffs. In procuring them, Japan incurred a debit balance of trade with other countries which was largely offset by a credit balance from its exports of raw silk to the United States. But with the severe decline in the price of raw silk between 1930 and 1932, Japan's international balance of payments was profoundly modified.<sup>1</sup> Although the volume of Japanese raw silk imported by the United States was increased,<sup>2</sup> the value of such imports went down rapidly from 356 million dollars in 1929 to 106 million dollars in 1932, followed by a further decline to 92 million and 70 million in the next two years.<sup>3</sup>

The result was that Japan now faced a debit balance in its trade with the United States. In order to continue importing essential raw materials and foodstuffs, Japan was compelled to rearrange its trade with the rest of the world so as to yield a credit balance. The rearrangement took a twofold form: the yen was

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<sup>1</sup> The unit value of raw silk exports declined from 18.5 yen per kin in 1929 to 6.4 in 1931, recovering to 7.0 in 1932 (UNITED STATES TARIFF COMMISSION *Recent Developments in the Foreign Trade of Japan*, 1936, p. 16).

<sup>2</sup> The annual average during 1924-1928 was 55 million lbs, during 1930-1932 it was 66 millions lbs (*ibid.*, p. 8).

<sup>3</sup> *Ibid.*, p. 8.

devalued, exports of cotton, wool and silk tissues were pushed vigorously. The effects upon Japan's balance of international payments is shown in table 2

TABLE 2 — JAPANESE BALANCE OF PAYMENTS IN COMMODITY TRADE, 1924-34

(In millions of yen)

Year	Balance in trade with the United States	Balance in trade with all other countries
1924-1928 (average)	+ 191	— 522
1929	+ 260	— 327
1930	+ 63	— 139
1931	+ 83	— 172
1932	— 65	+ 44
1933	— 129	+ 73
1934	— 370	+ 259

SOURCE UNITED STATES TARIFF COMMISSION *Recent Developments in the Foreign Trade of Japan*, 1936, p. 8

As Japan's increasing exports flowed into world markets which were contracting owing to the depression and other causes, special measures were taken by many Governments to limit the volume of the stream. First and foremost, in January 1934, after denunciation by India of the Indo-Japanese Convention of 1904,<sup>1</sup> the so-called Raw Cotton-Cotton Piece Goods Agreement was negotiated between the two countries. This agreement restricted the quantity of Japanese cotton piece goods which might be imported into India, and scaled the quantitative restrictions to accord with Japan's purchase of Indian raw cotton.<sup>2</sup>

Second, in May and June of 1934, the United Kingdom imposed quotas on imports of cotton and rayon piece goods into all of the Crown Colonies (except British East Africa and Hong Kong). Except in British West Africa (where until 1 January 1937, the discrimination was *de jure* against Japan alone), imports from all foreign countries were subject to the quotas. *De facto*, however,

<sup>1</sup> The denunciation was simultaneous with an increase of duty on non-British piece goods to 75 per cent *ad valorem*.

<sup>2</sup> Japan was allotted an annual import quota of 125 million yards uncondi-

the choice of 1927-1931 as the base years on which the quotas were calculated caused them to act against Japan more than against any other country <sup>1</sup>

A third major restriction on Japanese goods arose out of the operation, in the Netherlands Indies, of an emergency quota system initiated by the Crisis Import Ordinance of 1933. The quota limitations which began to be applied early in 1934 in effect favoured the Netherlands, and to a less extent the United Kingdom, as regards imports, *inter alia*, of bleached and unbleached cotton goods, coloured woven cotton materials, cotton blankets and towels. *De facto* if not *de jure*, it was Japan which suffered the brunt of these measures <sup>2</sup>

The fourth major restriction came into effect in the Philippine Islands. On 11 October 1935, after negotiations with the United States, the Japanese Government voluntarily agreed to limit, for a two-year period beginning 1 August 1935, shipments of Japanese piece goods to the Philippine Islands to 45 million square metres annually. The quotas were to continue in effect until 1 August 1937, provided that during this interval the Philippine tariff duties applicable to Japanese cotton goods were not raised <sup>3</sup>

On 27 December 1936, after a so-called trade war that began in May of that year,<sup>4</sup> Australia became a fifth major market where Japanese textiles could enter only under quotas. The terms of the agreement concluded between the two Governments on that date provided that, for a period of eighteen months thereafter, imports into Australia of Japanese cotton and rayon piece goods would be limited to 102.5 million square yards yearly divided equally between the two classes, and exclusive of cotton fabrics destined for bagging. In return, Australia undertook to reduce the rate of duty on Japanese goods by half (thus narrowing the preferential margin of the United Kingdom), while Japan undertook to purchase 533 thousand bales of Australian wool per annum during the period <sup>5</sup>

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<sup>1</sup> ROYAL INSTITUTE OF INTERNATIONAL AFFAIRS *Raw Materials and Colonies*, London, 1936, p. 42. Compare JOINT COMMITTEE OF COTTON TRADE ORGANISATIONS *Empire Trade in Cotton and Rayon Goods Before and After Ottawa*, 1935, p. 13, see also *The Times* (London), 6 January 1937.

<sup>2</sup> A. N. DE WILDE, J. T. MOLL and A. J. GOOSZEN *The Netherlands Indies during the Depression*, 1936, pp. 70-71, compare *Raw Materials and Colonies*, pp. 43-44.

<sup>3</sup> *Cotton Cloth Report*, p. 78.

<sup>4</sup> The trade war began when Australia raised its duties on cotton and rayon piece goods imported from Japan. In retaliation Japan took measures to reduce to a minimum her imports of Australian raw wool.

<sup>5</sup> *Manchester Guardian* 28 December 1936.



Without going into further details, the Japanese foreign market situation may be summarised as follows

In June 1936 (according to a study issued by the Joint Committee of Cotton Trade Organisations) cotton piece goods exported from Japan were subjected to restrictive measures in 56 out of 106 markets which are distinguished in Japanese export statistics. In 40 of these cases the restriction took the form of a quantitative limitation, while in the other 16 cases restriction took the form of a tariff preference in favour of Japan's principal competitor—the United Kingdom. The quantity of trade affected by the restrictions was about 67 per cent of total Japanese piece goods exports in 1935.

Obstacles to the expansion of exports of cotton goods from Japan were first imposed in 1932 when quotas were adopted in a number of countries, including France and some of her colonies, Turkey, Persia, Greece, Denmark (import licence system) and Holland. In the same year the Ottawa Agreements gave the United Kingdom a greater margin of preference in British countries. In November 1933 the institution of the system of prior exchange permits in Argentina in effect gave the United Kingdom and some other countries a preferential advantage over Japan. The earliest examples of regulation directed solely against Japan were the quotas in India and the Dutch East Indies imposed at the beginning of 1934. Five months later quotas were introduced in the British Crown Colonies. Since then many other countries have imposed barriers, some, as particularly in Egypt (now against China as well), the Philippine Islands, Iraq, Peru, Colombia, Ecuador and Venezuela, directed against Japan only, and some of a more general character, as in Haiti and Cuba, which have adopted a multiple tariff depending upon considerations of balance of trade. In addition the United States has recently raised tariff rates on some cotton goods items in which Japan has a virtual monopoly.<sup>1</sup>

To estimate the exact quantitative effects of the various restrictive measures on Japanese exports of cotton cloth is impossible. The study by the Joint Committee of Cotton Trade Organisations suggests that quotas have operated more powerfully than tariffs, that such quotas have been particularly efficacious in the Crown Colonies, in Peru and the Philippine Islands and have at least prevented any great expansion of exports to India and to the Netherlands Indies. Tariffs are judged to have had little effect unless, as in Latin America, they were set at prohibitive heights. Exchange discrimination in Argentina is noted not to have prevented Japan from increasing her share in that market, while the 40 per cent surcharge in the case of Egypt is considered to have had immediate serious effects, despite a small following recovery.<sup>2</sup>

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<sup>1</sup> MANCHESTER CHAMBER OF COMMERCE *Monthly Record*, Volume XLVII No 9, 30 September 1936, p 369

<sup>2</sup> *Ibid.*, p 370

Table 3 below shows the volume of Japanese exports of cotton cloth into a number of markets at significant periods before and after quota restrictions were applied

TABLE 3 — JAPANESE COTTON CLOTH EXPORTS, SELECTED  
MARKETS, 1934-1935

(million square yards)

	Pre-quota period (1934)	Under quota restriction (1935)
<i>British Crown Colonies</i>		
Quotas applied in spring of 1934, first full year of operation, 1935		
Gold Coast and Nigeria	7	8
Ceylon	41	5
Jamaica	5	5
British Malaya	91	47
Quotas not in force		
British East Africa	78	88
Hong Kong	36	49
<i>Netherlands East Indies</i>		
Quotas initiated early in 1934	432 (a)	370
<i>Philippine Islands (b)</i>		
Agreement in effect 1 August 1935 .	76 5 (c)	(53 8) (d)
<i>British India (b)</i>		
Raw-Cotton — Cotton Cloth Agreement, concluded January 1934	340 (e)	37½ (f) (400) (g)

(a) Average 1933-1934

(b) Imports from Japan

(c) Average 1934-1935

(d) Annual quotas until 1 August 1937

(e) Year ending 31 March 1934

(f) Actual quantity, year ending 31 March 1935

(g) Quantity allowable under quota

SOURCES: *Eastern Industrialisation and its Effect on the West*, p. 14, *Cotton Cloth Report*  
pp 78-79, LEAGUE OF NATIONS *World Economic Survey*, 1935/36, p. 204

### *The United Kingdom*

Faced with contracting markets for its textile products, particularly of cotton, woollen and worsted tissues, the United Kingdom, beginning in 1931-1932, turned its attention to the possibilities of the home and Empire markets. The first step was taken in the autumn of 1931, when the depreciation of the pound sterling automatically introduced a large measure of protection equivalent to an increased tariff, and reduced the export prices in foreign currencies of British commodities. The second step was taken

in March 1932, when the Import Duties Act, marking a definite breach with traditional free-trade principles, became law. The third step followed in August of the same year, when the Ottawa Agreements widened the preferential tariff margins which India and the Dominions had already been granting to the United Kingdom. Finally, and with more specific reference to textile products, quota restrictions were introduced into the Crown Colonies early in the summer of 1934 for the purpose of increasing British sales.

It would be difficult to exaggerate the importance, particularly to the wool and silk sections of the United Kingdom's textile industry, of the advantages in the home market which the monetary and commercial measures of 1931-1932 placed at their disposal. As for outside markets, the preferential tariff margins granted to United Kingdom exports of textile goods under the Ottawa Agreements have been of special importance to the British textile industry.<sup>1</sup> It is, of course, extremely difficult to measure the precise effects of these preferences, particularly in view of the fact that India and such countries as Australia and Canada have protective tariff systems designed to favour their home textile industries and also in view of the complicating influences of the depression and of the following recovery. In any case, the United Kingdom since 1931 has come to rely to an increasing extent upon its Empire preference markets as outlets both for cotton cloth and for woollen and worsted tissues, as is shown in table 4.

TABLE 4 — BRITISH TEXTILE EXPORTS TO INDIA AND BRITISH DOMINIONS, SELECTED CATEGORIES, 1928-1935

(in per cent of textile exports to all countries)

A — *All Cotton Manufactures, by Value*

	1928	1932	1935 (first half)
To India	21.7	16.3	16.7
To British Dominions	14.4	18.4	21.7
Total above	36.1	34.7	38.4

B — *Cotton Piece Goods, by Square Yardage*

	1928	1931	1935
To India	39.9	22.7	27.9
To British Dominions	7.4	13.6	19.9
Total above	47.3	36.3	47.8

<sup>1</sup> The extent of these margins in India and in the several Dominions is shown in Volume II, Part I.

C — Woollen and Worsted Tissues, by Square Yardage

	1928	1931	1934
To India	3 5	1 6	4 2
To British Dominions	31 6	28 2	34 6
Total above	35 1	29 8	38 8

SOURCE *Cotton Trade Statistics*, 1936, table 180, *World Consumption of Wool, 1928-1935*, p 46, *Empire Trade in Cotton and Rayon Goods Before and After Ottawa*, 1935, table 11

It is also difficult to evaluate the exact influence on British textile exports of the import quota system established in the Crown Colonies in May and June 1934. Table 5 presents data on the basis of which provisional conclusions may, however, be made.

TABLE 5 — IMPORTS OF COTTON PIECE GOODS FROM THE UNITED KINGDOM AND INDIA INTO BRITISH COLONIAL QUOTA MARKETS, 1934-1935

(in millions of square yards)

Imports into	From the United Kingdom			From India		
	1934 (first half)	1934 (second half)	1935 (first half)	1934 (first half)	1934 (second half)	1935 (first half)
British West Africa	23 5	44 5	65 8			
British Malaya	10 3	18 1	14 7	2 1	4 6	3 1
Ceylon	3 4	8 9	12 6	6 1	10 3	9 5
British West Indies	6 1	16 1	13 6			
British Guiana	1 7	3 0	2 5			
Mauritius	(a)	(a)		0 2	1 6	1 9
Total (b)	45 0	90 6	109 2	8 4	16 5	14 5

(a) Total for 1934 2 4

(b) Available figures only

SOURCES *Empire Trade in Cotton and Rayon Goods Before and After Ottawa*, Appendix table 20

Thus, both the United Kingdom and India doubled their volume of exports of cotton piece goods to Crown Colonies subject to import quotas between the first and second half of 1934. As for Japan, the country against whose exports these quotas were in effect imposed, her shipments to these markets were out more than half during the period in question.<sup>1</sup>

<sup>1</sup> See work cited as source in table 5

In sum, the effect of all the measures specified above was, as regards British Empire markets at least, to slow down the rate of decline in the United Kingdom's position as an exporter of textile manufactures. Regardless of the continuing expansion of textile activity in such parts of the Empire as Australia, Canada, and India, the effect was to integrate Empire markets more firmly than before into the system of world trade served by textile manufacturers in the United Kingdom. So far as cotton piece goods are concerned, the major tendencies of change are suggested by table 6.

TABLE 6 — ORIGIN OF COTTON PIECE GOODS CONSUMED IN THE BRITISH EMPIRE (EXCEPT UNITED KINGDOM), 1929-1934

	Million linear yards			Percentage		
	1929	1932	1934	1929	1932	1934
<i>Empire consumption</i>	6,788	7,101	7,103	100.0	100.0	100.0
Imports from United Kingdom	1,798	1,117	1,097	27.5	16.0	15.5
Imports from other countries	1,179	1,089	991	16.5	15.5	13.5
Indian production (less exports)	3,548	4,656	4,675	52.0	65.5	66.0
Canadian production	263	239	340	4.0	3.0	5.0

SOURCE: *Empire Trade in Cotton and Rayon Goods Before and After Ottawa, 1935*. Appendix table 8.

Table 6 does not include consumption in the United Kingdom itself. When the figures for 1934 are adjusted to allow for such consumption, the outlines of the entire British Empire market for cotton piece goods emerge as shown in table 7.

TABLE 7 — BRITISH EMPIRE MARKET FOR COTTON PIECE GOODS, 1934 (INCLUDING UNITED KINGDOM)

	Million linear yards	Percentage
<i>Total Empire consumption</i>	8,186	100.0
United Kingdom consumption of United Kingdom goods	1,060	12.9
Imports from United Kingdom	1,097	13.4
Imports from all other countries	1,014	12.4
Indian production (less exports)	4,675	57.0
Canadian production	340	4.3

NOTE: \* Computed from table 6 above, *Cotton Trade Statistics, 1936*, tables 97 and 212 A, *The Pound of Trade Journal*, 24 Sept. 1936, p. 430.

### *The United States*

The magnitude of the home market in the United States for all textile manufactures exceeds that of any other single market in the world. This enormous home market, as is well known, is protected for the benefit of the domestic textile industry by means of high tariffs<sup>1</sup>. By virtue of this privileged position, United States textile manufacturers can exploit to the full the possibilities of mass production, with resulting economies in overhead costs.

The fact that, despite these advantages and the high degree of mechanisation, United States textile manufactures have but relatively small foreign markets, and these contracting in magnitude, suggests that low overhead costs are more than offset by other factors. Table 8 presents data which bring out the sheltered character of the United States as a textile market, and the relative insignificance, save in the case of imported linen and jute, both of imports and exports.

TABLE 8 — UNITED STATES EXPORTS AND IMPORTS OF TEXTILE MANUFACTURES AS PERCENTAGES OF TOTAL DOMESTIC PRODUCTION  
(by value)

Commodity	1929	1926-1930		1933		
	Pro- duction	Aver- age imports	Aver- age exports	Pro- duction	Im- ports	Ex- ports
Cotton manufactures (a)	100	3.7	6.5	100	3.2	3.5
Jute " " (b)	100	376.3	18.5	100	225.6	8.8
Linen " " (b)	100	313.5	5.2	100	350.0	2.3
Wool " " (c)	100	6.9	0.5	100	2.9	0.2
Silk and rayon manufactures	100	7.1	9.3	100	3.5	2.5

(a) Production of cotton goods plus cotton small wares

(b) Import data are estimated and probably include small amounts of hemp and ramie manufactures, exports are for flax, hemp and ramie manufactures, not separately distinguished

(c) Woollen and worsted goods

in the Philippine Islands, until 1 August 1937, imports of cotton cloth from Japan will be limited to 45 million square metres annually, no such quantitative limitations apply to exports from the United States. In Cuba, one of the countries more or less within the sphere of economic influence of the United States, the multiple tariff system in force tends to operate against imports of cotton piece goods from Japan, in particular, and to favour those from the United States<sup>1</sup>

### *India*

As brought out earlier, the tariff regime applying to cotton textiles imported into India combines three distinct features. First, the basic rates of duty are high, with the avowed purpose of protecting the home mills. Second, imports from the United Kingdom enjoy an appreciable margin of preference. Third, imports from Japan are subject to quota limitations pursuant to the Raw Cotton-Piece Goods Agreement already described.

This is not the place for a detailed examination of Indian tariff history in its bearing on the textile industry<sup>2</sup>. The following brief summary will suffice.

Between 1858 and 1882, Indian millowners were successful in obtaining moderate protection against imports of cotton goods from the United Kingdom and foreign countries. Between 1882 and 1894, so far as cotton goods were concerned, India functioned as a free-trade country. From then until 1916, although imported cotton goods were subject to moderate duties, these were offset by equal countervailing excise duties on products manufactured in Indian mills. From 1916 on, however, steps were taken in the direction of protective tariffs: the import duties were raised to a higher level than the excise rates, the latter were abolished in 1925-1926, at length cotton goods were transferred to the protective schedule in 1930, with a preferential margin granted to United Kingdom manufacturers. Since then, the principal changes in the tariff have been concerned with extending the system of Ottawa Agreement preferences and with holding down the inflow of Japanese cloth.

In short, cotton mills in India, as the result of that country's commercial autonomy, enjoy a truly protected home market. At the same time, the quota system which quantitatively restricts imports from Japan into the Crown Colonies gives Indian textile mills definite competitive advantages in such markets as British Malaya, Ceylon and Mauritius.

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<sup>1</sup> MANCHESTER CHAMBER OF COMMERCE, *Monthly Record*, 30 September 1916, p. 364.

<sup>2</sup> Such an examination may be found in M. P. GANDHI *The Indian Cotton Textile Industry*, Calcutta, 1930, Chapters IV, VI, IX.

In point of population, the Indian textile industry enjoys access to the largest of all domestic markets, with the probable exception of China. As already pointed out, India is by far the world's largest importer of cotton piece goods, and possesses one of the largest cotton manufacturing industries. At the same time, the quantitative significance of the Indian textile market is restricted by limitations of national wealth and income, arising out of general low productivity in industry and agriculture. This appears clearly from the data on per capita consumption and on unit values of imports, as shown in Chapter VII.

Nevertheless, the advantages which at present accrue to Indian millowners in the home market are important. In 1913-1914 Indian mill production of cotton cloth was about 28 per cent of the total quantity of mill-made cloth available for consumption, in 1927-1928 the share of total consumption supplied by Indian mill output had risen twofold to 57 per cent, in 1933-1934 it reached almost 80 per cent<sup>1</sup>. Protection has undoubtedly played an important rôle in enabling Indian mills to obtain an increasing share of the home market.

### *France*

As indicated elsewhere in this Study, no country's exports of textile products contracted more markedly during the depression years than those of France. France had to contend, as did other countries, with diminished purchasing power the world over, with new tariff barriers in all principal markets, with import quotas restricting the volume of trade, and with discriminations and preferences arising out of foreign exchange control and bilateral trade arrangements. While most countries, however, after 1931 allowed their currencies to depreciate from 30 to 60 per cent, France maintained the pre-existing gold parity of the franc until late in 1936, and as a consequence, together with such countries as Switzerland and the Netherlands, had to face the additional difficulty of selling its textile exports at "dear" prices in terms of the newly depreciated currencies.

Confronted by these difficulties, France fell back upon high tariffs and an elaborate system of import quotas. These were applied, wherever juridically permissible, throughout the French Empire, which is, including the motherland, colonies, protectorates and mandates, one of the largest trading areas in the world.

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<sup>1</sup> Computed from *Eastern Industrialisation and its Effect on the West*, p. 278



France maintains very close relations with her colonies. Algeria, being part of France, is included in the French customs area, Tunis makes its own customs regulations subject to the approval of the French Ministry, and grants heavy preferences to French goods.

Under the Colonial Customs Act of 13 April 1928, the "assimilated areas" (Indo-China, Madagascar, Guadalupe, French Guiana, Martinique and Reunion) enjoy free trade with the mother country and have virtually the same tariffs, in effect, therefore, they afford 100 per cent preferences to France and receive them in return. The non-assimilated areas comprise the Mandates and Treaty Territories and the remaining French colonies. Of these latter, only French Somaliland, which is chiefly of importance for the entrepot trade, maintains the Open Door, in the other territories the tariffs strongly favour the mother country.

The complicated import quotas established by France since 1931 do not place any restrictions on the import of colonial produce, whilst some of the colonies have given quota systems of their own correspondingly favourable to France. In consequence the proportion of France's import and export trade conducted with the colonies has risen strikingly in the past few years.<sup>1</sup>

The trade returns of France between 1932 and 1935 bear eloquent testimony to the progressive emergence of a sort of self-enclosed system of trade in textile manufactures between the motherland and the colonies.<sup>2</sup> This development is illustrated by table 9.

The devaluation of the French franc late in September 1936 was accompanied by a substantial liberalising of the quota system, largely, it may be suggested, with a view to preventing an undue rise in commodity prices. It remains to be seen whether the devaluation, by expanding the volume of exports from France to foreign countries, will diminish the proportional importance of her colonies as markets for French textile goods, and whether the

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<sup>1</sup> ROYAL INSTITUTE OF INTERNATIONAL AFFAIRS *Raw Materials and Colonies*, 1936, p. 43. For a detailed discussion of the various tariff regimes prevailing in the French colonies, mandates, treaty territories and protectorates, see *Conférence Economique de la France métropolitaine et d'outre mer*, December 1934, April 1935, *Rapports généraux et conclusions d'ensemble*, Vol. 1, pp. 41-55.

<sup>2</sup> The belief that even in the so-called Treaty Territories, such as French Morocco and French West Africa, the "open door" should be abandoned and quotas favourable to the home land introduced, seems to be making considerable headway in France. For example, the French Government recently terminated Article IX of the Anglo-French Convention of 1898, by which the two countries undertook not to discriminate against one another in Nigeria, the Gold Coast, Dahomey, and the Ivory Coast, an immunity which extended to most other important States by virtue of the most-favoured nation clauses. Simultaneously with the termination of Article

liberalisation of the quota system, by permitting a freer flow of non-French goods into the colonies will also reduce the proportional importance of the motherland in the colonial trade. Even the complete lifting of quotas, however, would still leave France with large preferential tariff margins in almost all portions of her colonial Empire.

TABLE 9 — FRENCH TEXTILE EXPORTS, BY DESTINATION,  
1932-1935

(in thousand quintals)

	To foreign countries		To colonies	
	1932	1935	1932	1935
<i>Yarns</i>				
Linen, hemp or ramie	61.8	48.8	1.6	1.4
Jute, etc	7.8	6.6	21.3	26.2
Rope and twine	1.9	2.2	33.3	34.0
Cotton	61.5	60.2	12.8	19.9
Wool	128.2	98.0	3.4	6.6
Thrown or spun silk, or rayon	94.6	88.1	3.1	3.3
<i>Tissues</i>				
Linen, hemp or ramie	11.2	5.6	6.6	6.6
Jute, etc	32.1	39.8	74.5	119.9
Cotton	96.5	32.6	292.9	356.8
Wool or worsted	79.7	34.4	9.1	12.7
Thrown or spun silk, or rayon	62.4	35.9	7.1	12.9
Total, yarns and tissues (a)	688.9	453.0	466.3	600.5

(a) Including small amounts of hair manufactures, etc

SOURCE: *Statistique Mensuelle du Commerce Extérieur de la France*, Dec 1935, p. 48

### Germany

The case of Germany sheds light on the problem of access to and exclusion from markets, as it affects major textile producing countries which possess small colonial possessions or none at all. Even before the World War Germany was only a minor colonial power. As a result of the Treaty of Versailles such colonies as Germany possessed (German East Africa, German South West Africa, the Cameroons, Togoland, New Guinea, Samoa and other South Pacific Islands) were transformed into League of Nations mandates.

It can be reasonably argued that Germany's textile industries suffer competitive disadvantages from the fact that a large proportion of the world's colonial areas constitute preferential or reserved markets for the benefit of other countries. As against this, it may be contended that

First, Germany's textile mills enjoy considerable protection in their own home market, which, outside of the United Kingdom, is the largest and richest in Europe. Protective tariff rates and severe control of foreign exchange combine to reserve the greater part of the German market for the output of German spindles and looms.

Second, while colonies or protectorates which do not enjoy self-government or at least tariff autonomy, such as Ceylon, the Netherlands Indies, Nigeria, French Indo China, etc., are among the major importers at least of cotton and rayon tissues, nevertheless, the overwhelming proportion of the "oversea" markets for cotton and rayon tissues is constituted by such countries as India, Argentina, the Union of South Africa, Egypt, Turkey, and others. Furthermore, as regards trade in wool and worsted tissues, the colonial markets hardly figure at all, for reasons both of climate and of purchasing power. As regards pure silk tissues, the colonial markets are also almost negligible primarily because of insufficient income.

Third, over a large range of colonial markets most of the exporting countries enjoy, so far as tariffs are concerned, complete equality of treatment. Thus, in all "A" and "B" Mandates under the League Covenant, the "open door" must be observed as regards "trade and commerce of other Members of the League", an advantage extended in practice to non-members as well.<sup>1</sup> Moreover, in the Congo Basin, in Morocco, and until recently in British and French West Africa, the "open door" is (or was) established on the basis of international treaties supplemented by most-favoured-nation clauses in the commercial treaties of the signatory powers.<sup>2</sup>

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<sup>1</sup> Covenant, Article 22. "A" Mandates in 1936 were Palestine, Transjordan, Syria and Lebanon, "B" Mandates were Tanganyika, Ruanda Urundi, British Togoland, British Cameroons.

Fourth, computations made on the basis of official German statistics indicate that in 1929 all colonial markets, African and Asiatic together, took only 3.5 per cent of the volume of Germany's exports of cotton, wool, silk and rayon tissues combined. In contrast, the United Kingdom alone absorbed 20.8 per cent of the volume of such exports, the rest of Western and Central Europe 24.1 per cent, the Scandinavian countries 12 per cent, the Balkan-Near Eastern Group, 8.1 per cent, Latin America 7.2 per cent, and the United States alone 6.8 per cent. Table 10 summarises the composition of Germany's export market for these textile fabrics in 1929.

TABLE 10 — EXPORTS OF TEXTILE FABRICS FROM GERMANY,  
BY DESTINATION, 1929

(in percentages of volume totals)

Country of destination	Total	Cotton	Wool, etc	Silk and rayon
All countries (tons)	70,047	36,767	25,473	7,807
United Kingdom	20.8	18.2	22.2	28.2
Other Western and Central Europe (a)	24.1	19.4	30.0	26.7
Scandinavia	12.0	10.7	14.4	10.8
Balkan Europe and Near East (b)	8.1	9.6	7.3	3.4
North Eastern Europe (c)	4.1	4.7	4.2	0.7
Latin America	7.2	10.1	4.6	2.4
United States	6.8	7.9	4.7	8.4
China, India and Japan	4.2	3.6	5.2	3.7
Colonial markets (d)	3.5	5.4	0.8	3.7
British Dominions	3.8	3.7	3.4	5.6
All other countries (e)	5.4	6.5	3.3	6.4
All countries	100.0	100.0	100.0	100.0

(a) Excluding Hungary.

(b) Hungary, Balkans, Turkey, Egypt.

(c) Including U.S.S.R.

(d) Including Philippine Islands and "Other Asia" Category.

(e) Not separately specified, less than one million R.M. each.

SOURCE: Computed from GERMANY *Statistisches Jahrbuch*, 1930, pp. 218-219.

In brief, although Germany may be handicapped as an exporter of textile fabrics to the colonies and preference markets of other Powers, she also has to-day preferential trading advantages in many

non-colonial markets. Bilateral trade agreements, developed further by Germany than by any other major country, tend by their very nature to foster localised monopolies or quasi-monopolies in international trade. This is to say, bilateral trading has served to generate for the benefit of German textile exports a new kind of preference market. Such bilateral trading is ordinarily implemented by "Aski" or compensation marks, which give to German exports the impulse of a *de facto* devalued currency. The nature and force of Germany's recent export drive, in particular toward Near Eastern and Latin-American markets where bilateral trading has been especially developed, is indicated in table 11, at the same time this table illustrates the growing success with which Germany has been exploiting three colonial African markets.

TABLE 11 — EXPORTS OF GERMAN COTTON PIECE GOODS,  
SELECTED MARKETS, 1933-1936  
(in per cent of total to all countries)

	1933	1934	1935	1936	
	Quarterly average			1st quarter	2nd quarter
All countries (quintals)	18,200	17,275	23,925	56,909	35,067
Hungary, Balkans and Turkey	9.6	21.7	28.5	22.5	32.1
British East and West Africa, Belgian Congo	5.0	10.0	16.2	25.7	26.8
Colombia, Cuba and Peru	0.9	0.8	3.8	7.0	6.8
China and Siam	2.7	3.0	8.5	1.7	1.4
All other countries	81.8	64.5	43.0	43.1	32.9
All countries	100.0	100.0	100.0	100.0	100.0

SOURCE: Computed from JOINT COMMITTEE OF COTTON TRADE ORGANISATIONS, *The Changing Conditions of World Trade in Cotton and Rayon Goods* V Appendix Table 10

## II — CURRENCY DEPRECIATION

In all countries where currency devaluation was undertaken after 1931, it was done with a view to the general problems of the national economy to correct "unfavourable" balances of international payments, to relieve deflationary pressures on

prices and incomes, to bring the cost of export commodities into "balance" with world price-levels, etc. In some cases at least, considerations relating to the situation of the textile industry played a part in the decision to devalue and in the extent of devaluation selected. This was notably true of Japan, where the devaluation of the yen followed close upon the catastrophic collapse in the price of raw silk which modified that country's whole international balance of payments. In the United Kingdom the extreme distress of the textile trades was certainly an appreciable link in the chain of events which led to the depreciation of the pound sterling.

The effect of devaluation upon the competitive ability of the major textile exporters may best be considered country by country.

### *Japan*

Of all the major textile producing countries, Japan has devalued by far to the greatest extent.<sup>1</sup> The large devaluation of the yen thus made available to Japanese textile exporters a very wide margin within which they could reduce price quotations in terms of foreign currencies, and yet obtain equal or larger sums of yen. It cannot be doubted that the very considerable price advantage which resulted from the yen devaluation was a primary factor in promoting Japanese textile sales after 1931-1932. On the other hand, the cost-raising consequences of yen devaluation have been slow to make their full influence felt. Wage rates in Japan, to take one of the primary costs of textile production, have lagged far behind the rise in commodity prices,<sup>2</sup> and the cost of raw cotton, the most important cost in cotton manufacturing, was pushed up by the yen devaluation relatively little, owing to the continuous fall in world prices of raw materials, as well as to the ability of Japanese cotton mills to buy raw cotton advantageously, as explained below.<sup>3</sup>

### *The United Kingdom*

The suspension of the Bank of England's obligation to pay gold against its notes has not had, in the case of textile manufactures,

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<sup>1</sup> For comparative devaluations see Volume II, Part I.

<sup>2</sup> UYEDA and INOKUCHI *Cost of Living and Real Wages in Japan 1914-1936*, pp. 20, 24. See also Chapter X.

<sup>3</sup> See below, pp. 201-203.

effects anywhere as beneficial in pushing exports as it had in the case of other British commodities. There were two main reasons for this: first, a large proportion of the British export market for textiles consists of countries which adhered and adhere to-day to the sterling bloc. With respect to such countries, the devaluation of the pound made no difference in the margin of possible price reduction at the disposal of British textile exporters. Second, and even more important, the Japanese yen fell much farther than the British pound. Whatever the size of the margin available to British exporters, that available to Japanese exports was still larger. On the other hand, devaluation of the pound was very effective in curtailing the stream of textile imports into the United Kingdom itself. As has been shown earlier, this contributed a powerful impulse to at least wool and silk manufacturing as industries for the home market.

### *The United States*

Devaluation of the American dollar had little or no effect upon the export trade of the United States textile industry. The most important markets—the Philippine Islands, Cuba, Mexico, Canada, etc.—themselves possess currencies which are more or less rigidly linked to the American dollar. It is true, however, that devaluation of the dollar, together with the cotton restriction programme enforced during the life of the Agricultural Adjustment Act, resulted eventually in an increase in the dollar prices which American textile mills had to pay for their raw materials. To the extent that the world price of raw cotton may have been raised somewhat by the crop restriction scheme, the increased raw material costs were felt equally by spinning establishments in all countries. To the extent that the world price of raw cotton may have been depressed *in the short run* by dollar devaluation, spinning establishments in countries other than the United States were in a position to gain on raw material account.

More generally speaking, devaluation or depreciation by countries producing textile raw materials operated to offset the cost-raising tendencies of devaluation by countries exporting finished textile fabrics. In the case of raw cotton, it would be only reasonable to suppose that the influence of devaluation—*de jure* or *de facto*—by the United States, India, Egypt, Brazil, China, etc., relieved some of the consequences of devaluation—*de jure* or *de facto*—by Germany, Japan, the United Kingdom, etc. Similarly, in the

case of wool, Australia, Argentina, the Union of South Africa, and New Zealand all let their currencies decline at an early phase in the course of monetary developments, the pressure of raw material costs was thus relieved somewhat for the wool manufacturing countries which allowed their currencies to seek lower levels. In the case of silk, Japan's own considerable devaluation was undoubtedly a large factor in furthering the continued decline of raw silk prices after 1931-1932. As a consequence, the competitive position *vis-a-vis* other textile materials of silk manufactures in all countries, particularly in the United States, was considerably strengthened.

### *The Gold Bloc*

The so-called "gold bloc" group of countries suffered from serious disadvantages throughout the period of monetary disequilibrium right down until October 1936, when the French and Swiss francs, together with the Dutch florin, were simultaneously devalued. The disadvantage took the following form: the prices of French, Swiss and Dutch textiles were extremely high when reckoned in terms of the devalued currencies of the countries to which those exports were being transported. Moreover, when cutting prices to meet the price advantages given to their competitors by the devaluation of other currencies, exporters from the "gold bloc" countries could do so only at the expense of their profit margins. It must be recognised, however, that the textile industries in these countries enjoyed advantages from the ability to buy raw materials at low prices in terms of their own national currencies.

### *Exchange Control Countries*

Before these two countries introduced rigid control of foreign exchange, textile manufacturers in Germany and Italy, like those in France, the Netherlands, and Switzerland, felt severe pressure from currency depreciation by competing countries. Thus, German exports were severely hit in 1932 and 1933 by the competition of countries with devalued currencies. Later on, however, the development of exchange control and accompanying measures, first in Germany and later in Italy, served to yield *de facto* many of the advantages that *de jure* devaluation might have conferred. At the same time the extreme difficulties encountered in obtaining



foreign exchange for the purchase of raw materials imposed *de facto* all the disadvantages of *de jure* devaluation. It on balance the textile exporters in Germany and Italy have suffered more in the way of handicaps than they have gained in the way of advantages, this is to a large part a consequence of the monetary policy and of the tendency towards economic self-sufficiency in these countries.

### III — COMMERCIAL ORGANISATION

Within the time-limits of this Report, it did not prove possible to undertake a comprehensive survey of commercial organisation as a factor in determining competitive ability in home and export markets. The present discussion is confined, therefore, to a few generalisations relating to the United Kingdom, India, China and Japan, and is limited to cotton textile production.

#### *United Kingdom*

As was brought out in Chapter II, the commercial organisation of the textile trades in the United Kingdom is not only complex, but also highly decentralised. To some degree, it cannot be doubted, such individualism is a disadvantage when the necessity arises for forming a common front in competition abroad. On the other hand, agencies of central purpose and action, for example the Joint Committee of Cotton Trade Organisations, do function, British entrepreneurs have found it possible to act in concert on yarn prices and on finishing charges, again, a large majority of the cotton spinners did show themselves to be of one mind in the important decision to implement the retirement of redundant capacity by legislative measures, etc.

At the same time, some of the British difficulties may be attributed to commercial organisation. By and large, the spinners, operating in relatively large units which show some tendency to amalgamation, now appear to be somewhat better organised than the weavers, characterised by smaller-size producing units and by diversity of products. The finishers until 1930 were perhaps the most effectively organised of all, following the breakdown of minimum price lists for finishing, the printing and dyeing sections are now again attempting to set limits to their internal competition. So far as internal difficulties are concerned, these differences in organisation have at various times found expression in agreements

on yarn prices, to the possible disadvantage of weavers, and in agreements on finishing charges, to the possible disadvantage of both spinners and weavers. In short, weavers of cotton cloth in the United Kingdom may well in recent years have been handicapped in competing abroad by rigid costs for yarn, for finishing, or for both, an increasing tendency toward organisation of the weaving section has revealed itself as a result of these and other causes.

Exports of British cotton cloth are handled by the shipping merchant, who on the one hand keeps in close contact with foreign clients and on the other buys the cloth in the grey from the appropriate manufacturer and has it finished to his specifications on commission. It must be stressed that the export marketing of cotton cloth in the United Kingdom is individualistic in a very high degree, the importance of this fact will emerge more clearly when the centralisation of export marketing in Japan is considered. In contrast, imports of raw cotton into the United Kingdom are dealt with by a few hundred cotton brokerage and merchanting firms, of whom a relatively small number handle the bulk of the trade.<sup>1</sup>

### *India*

In India, some of the difficulties of the cotton manufacturing industry have been frequently attributed to the existence of the "managing agency" system.

A characteristic feature of organised industry and commerce in all the chief Indian centres is the presence of the large agency firms, which, except in the case of Bombay, are mainly European. In addition to participating in the export and import trades, they finance and manage industrial ventures all over the country and often have several branches in the large towns. The importance of these agency houses may be gauged from the fact that they control the majority of the cotton, jute and other mills, as well as the tea gardens and the coal mines. This system originated and has still continued owing to the ability of these houses to furnish financial help to industries.

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It is true that the Indian Tariff Board reached the conclusion that except for "undue conservatism and lack of initiative", the managing agency system could not be charged with responsibility for the depression which bore down on cotton manufacturing in India between 1924 and 1927. Independently, however, of the local problems of Indian cotton manufacturing during that period, competent observers generally agree that the system of managing agencies lends itself, in extreme cases, to abuses which inevitably tend to raise costs of production and to diminish ability to compete with imported goods. Thus in unscrupulous hands, the managing agency system permits the agent to profit at the expense of the undertaking by acting as an intermediary in its purchases of raw materials and its sales of fabrics, by charging unjustifiably high fees and commissions for his services, by financing the enterprise at excessively high rates of interest, etc. In unskilful hands, moreover, the system tends to stress marketing and finance more than economies in manufacturing operations. The system is an outgrowth of a lack of adequate domestic supplies of capital in India combined with a drive towards rapid and large-scale industrialisation<sup>1</sup>

Combined spinning-weaving mills on a fairly large scale are characteristic of the commercial organisation of cotton manufacturing in India. At the same time a substantial proportion of all cotton cloth domestically consumed in that country is produced by millions of individual hand-loom weavers, dependent for a large part of their yarn requirements on the spinning mills. This state of affairs is not without material influence on the ability of Indian mill-made and hand-made cloth to compete with one another and to meet competition from Japan and the United Kingdom both in India and abroad. Cotton yarn, like piece goods, is subject to a protective tariff, which means, under ordinary circumstances, that the costs of yarn to hand-loom weavers are higher than they would otherwise be. As for the mill-weavers, they manufacture their own yarn, selling almost all of the "surplus" if any, to hand-weavers, particularly since the former important export trade to China dwindled to negligible proportions. The yarn costs with which the combined spinning-weaving enterprises see fit to charge themselves are thus determined by internal accounting factors rather than by the free play of supply and demand in

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<sup>1</sup> Compare *Report of the Indian Tariff Board*, pp. 85-90, HUBBARD *Eastern Industrialisation and its Effect on the West*, pp. 255-257.

the open market. In sum, it might be fair to infer that the commercial organisation of cotton manufacturing in India operates to strengthen the competitive ability of Indian mills *vis-a-vis* hand-made and imported cloth, and to weaken the competitive position of Indian hand-weavers *vis-a-vis* the output of home and foreign mills. On the other hand, mill-made and hand-made cloth are not directly competitive over a fairly wide range of the market, as a result of type and quality differences.

### *China*

The most striking feature of the commercial organisation of cotton manufacturing in China is its division into three national groups: the Chinese, the Japanese, and the British.<sup>1</sup> The Chinese and Japanese sections are responsible for the great bulk of the spindles, looms, workers and output of yarn and cloth, the small remainder is attributable to the British mills. In fact, it would be impossible to obtain a clear picture of the true magnitude of Japan as a competitive factor in the world's markets for cotton cloth without allowing for the circumstance that an important proportion of all China's mill capacity is in Japanese ownership. This means, first, that a large group of Japanese millowners enjoy a privileged position in the Chinese market. It means, second, that the depressing effects of the loss of China as an export market for the Japanese cotton textile industry are thus in part offset. It means, third, that the sharp decline in Japanese exports of cotton yarn to India since 1924 has been partially compensated for by an increase in shipments from China. In a sense, part of China's mill capacity might be counted in with that of Japan, to the extent, that is, that cotton mills in Japan and in China operate under common Japanese ownership. The advantages of such ownership, it must be emphasised, redound to the benefit of Japan only so far as the net profits of operations in China may be "brought home" by the Japanese millowners. On the side of employment and wages, however, it is Chinese workers who benefit by the willingness of Japanese millowners to invest capital in Chinese industry, just as it is Chinese consumers, in the main, who benefit by the ability to buy tissues and fabrics manufactured at the low costs accompanying mass production by power looms.

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<sup>1</sup> The present discussion is based chiefly on H. D. Fong *Cotton Industry and Trade in China*, Tientsin, 1932, Chapter VII.

## Japan

The commercial organisation of the cotton industry in Japan was touched upon in Chapter II, the emphasis here is not upon the details of the set-up, which are very complex, but upon the competitive advantages which Japan derives from a level of integration and centralisation higher than that of the cotton industry in any other country <sup>1</sup>

First, most of the importing of raw cotton and a large part of the exporting of cotton cloth are in the hands of three big merchant houses <sup>2</sup> The resulting concentration permits the Japanese cotton textile industry as a whole to execute its purchases of raw cotton at advantageous times in the movement of prices, and it is generally thought that, owing to the relations existing between cotton importing and spinning firms, this fact gives Japanese spinners a chance to obtain raw cotton at slightly lower prices than their competitors <sup>3</sup> Similarly, the concentration in the marketing of cotton cloth—accompanied as it is by a worldwide network of sales agencies in close touch with old markets and in constant pursuit of new ones—is of considerable advantage in directing exports to the most favourable markets at the most opportune moments

Second, the systematic export marketing of cotton tissues is further facilitated by the existence of several so-called export guilds, established in accordance with the Export Association Act of 1925 as revised in 1931 and 1934 <sup>4</sup> Given their powers to regulate volume

<sup>1</sup> The present discussion is based on *Japanese Trade and Industry*, 1936, Chapter VIII, *Collective Regulation in the World's Cotton Industries*, 1936, pp 23-26, *PEP Report on the British Cotton Industry*, 1935, Part IV, *Cabinet Committee Report*, 1935, pp 130-134, and on supplementary information gathered by the International Labour Office

<sup>2</sup> Toyo Menkwa Kaisha, Nippon Menkwa Kaisha, and Goshō Kaisha Kaisha

<sup>3</sup> In this connection, it should be noted that Japanese spinners generally buy raw cotton at fixed prices instead of "on call" and do not protect themselves against fluctuations in raw material prices by hedging The dangers which might arise from this practice under a strictly individualistic system of buying may frequently be turned into distinct advantages under a centralised purchasing regime It is ordinarily maintained, for example, that Japanese stocks of raw cotton were brought to high levels before the yen was devalued, and allowed to run off considerably before dollar devaluation On the other hand, as in 1930, Japanese spinners have sometimes had to pay heavily for their failure to protect themselves against changes in the price of the raw material Cotton spinners in other countries neither gain nor lose as a general rule by short-run fluctuations in raw cotton prices, they ordinarily purchase "on call"—that is, undertake to buy stated volumes at the prices prevailing when the call is exercised—and hedge their spot purchases by forward sales in the futures market

<sup>4</sup> The most important of these guilds for the textile trade are those which handle exports of cotton piece goods in accordance with import quotas laid

of exports, to impose levies thereon and to allocate quotas, these guilds are an effective instrument of competition from two points of view. On the one hand, the funds which they obtain from export levies are used to encourage imports from countries discriminating against Japan because of passive trade balances. On the other, their control over volume, together with their ability to influence prices, may be employed to help in keeping the flow and price of Japanese exports at levels such as to minimise complaints of "dumping". The precise extent to which the guilds have succeeded in either of these objectives is, however, open to question.

Third, the internal organisation of cotton manufacturing in Japan has been of a character to foster differential prices between home market and export tissues. Highly organised in the Japanese Cotton Spinners' Association, the big spinning-weaving enterprises have been in a position (1) to demand quasi-monopoly high prices for yarn from the non-integrated weaving sheds which manufacture tissues chiefly for home consumption and (2) to offer low prices for the finishing of cloth to the many small bleachers, dyers, printers, etc. This power, so far as exercised, tends to raise the costs of manufacturing home-consumed cotton goods<sup>1</sup>. At the same time it tends to lower the yarn and finishing costs of the integrated enterprises manufacturing export tissues. Thus the low prices at which Japanese goods have been selling abroad may perhaps be attributed in part to the success with which highly integrated, highly organised undertakings can practise differential pricing and benefit from differential costing. In other words, part of Japan's competitive power in foreign cloth markets in recent years may well have been the resultant of pressure brought to bear

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down in India, the Netherlands Indies, the Philippine Islands, West Africa, the Near East and various countries in Latin America.

<sup>1</sup> Since, however, the Industrial Rationalisation Bureau was set up by the Japanese Government in 1930, the loosely organised district guilds of the non-combined

against the profit margins, not of the undertakings which export that cloth, but of the home-market undertakings which buy their surplus yarn or do their finishing

Although it is commonly charged by competitors of the Japanese textile industry that the industry receives Government export subsidies, no evidence to support the charge has ever been brought forward True, the extreme devaluation of the yen has the effect of an export subsidy, but in this respect the practice of Japan differs from that of other countries only in degree True, also, the subsidies paid by the Japanese Government to its merchant marine are one of the factors which provide Japanese importers of raw cotton and exporters of cotton manufactures with freight rate advantages It cannot, however, be maintained that shipping subsidies are a practice confined to Japan only Finally, the Japanese Government grants small operating subsidies—payments to set up offices in foreign cities and to organise expositions—to some of the export guilds, trade promotion practices like these are common to many countries

#### IV — COSTS OF PRODUCTION

The problems discussed in the preceding sections involve costs and prices as determining factors in international textile competition In the present section, however, cost and price factors will be considered from a narrower point of view, with special reference to plant and equipment account, raw materials, and labour

##### 1 — *Overhead Costs*

In textile manufacturing, as in other industries, costs of production represent the summation of the cost of raw and accessory materials, labour costs, overhead costs in the general sense (including depreciation and obsolescence of machinery as well as administrative expenses), and of such other direct costs as fuel, power and transportation

The costs of production, other than labour and raw materials, may first be discussed briefly In overhead costs, the most important variation on the international plane would appear to be diversity of shift practice, i.e. whether operation is on a single, double or triple shift basis In certain countries (e.g. Japan and India) and in certain districts of particular countries (e.g. the Southern States of the United States), multiple-shift operation is the general rule

in textile mills. In other countries (e.g. France and the United Kingdom) and in other districts (e.g. New England before the N.R.A. codes), single-shift operation largely prevails, owing to the combined force of trade union strength and local custom. Undeniably, mills in countries and districts where multiple shifts are operated enjoy advantages with regard to costs involved in obsolescence and depreciation, as compared with mills in countries and districts where single-shift operation is the rule. This advantage does not lend itself readily to quantitative determination, for it depends much less on physical or technological factors than on financial elements—the capitalisation of plant and equipment, rates of amortisation, etc.

TABLE 12 — PROPORTION OF WAGES AND OF RAW AND ACCESSORY MATERIALS COSTS TO GROSS VALUE OF TEXTILE PRODUCTION, SELECTED COUNTRIES, 1927-1928

(in percentage of gross value)

Country	Wages	Raw and accessory materials	Together
Germany		54	
Australia	22	57	79
Bulgaria		62	
Canada	18	55	73
Estonia		60	
United States	22	56	78
Finland	19	55	74
Hungary	15		
Latvia		60	
New Zealand	27	49	76
Norway	19	59	78
Palestine	19	53	72
United Kingdom (a)	(20)	66	(86)
Rumania		59	
Turkey		52	
Union of South Africa	26	44	70
U.S.S.R.	19	56	75

(a) 1930, Census of Production. Wage percentage covers two-thirds of the trade only.

SOURCE — H. GRÜNBAUM, *Die Welttextilkrise*, Institut für Konjunkturforschung, Berlin 1931, pp. 7, 8.

Such direct costs as fuel, power and freight charges are, as most students of the textile industry agree, of minor importance in their effects on total costs. Fuel and power costs, moreover, are so predominantly determined by strictly local factors that their detailed international comparison is very complicated. Freight charges, whether by sea or by land, are also a complex problem, a detailed analysis of which is impossible here.



## 2 — *Costs of Raw Materials*

Raw material and labour costs, however, merit detailed attention. It would appear, so far as data are available, that in 1927-1928 raw and accessory material costs in textile manufacturing ranged from 44 to 66 per cent of gross sales value and that wage costs ranged similarly from 15 to 27 per cent, as is shown in table 12.

The limitations of the figures in table 12 should be kept in mind. In the first place, they do *not* show the differences in material cost proportions that may prevail in individual branches of the industry. Second, the figures for 1927-1928 may *not* be valid for later dates, particularly in view of the great decline in raw material prices. Third, with reference to *present* cost structures, the total figures for labour and material costs combined are probably more accurate than the individual percentages of either cost group.

The percentage which raw material costs constitute of total production costs in different countries does not and cannot depend on significant differences in the price at which textile mills obtain such raw materials.<sup>1</sup> The textile raw materials are produced for, and sold in, the world market in the widest and truest sense of the term. The prices which mills have to pay at any given moment are determined by world market quotations in such centres as New York or Milan (raw silk), New Orleans, Bombay, Alexandria or Liverpool (raw cotton), London (raw wool) or Calcutta (jute) plus transportation charges, plus tariff duties, if any, in countries which have to import, and which see fit to "protect" domestic producers of raw materials. Textile mills in countries which produce within their own borders or in their colonies all or a large part of their raw cotton, raw wool, raw silk, raw jute or raw flax possess few advantages, if any, over textile mills in countries which have to import most or all of the raw materials in question.<sup>2</sup>

It is an inherent characteristic of the world market for primary commodities that identical prices should be charged to all purchasers at the same moment, and that all purchasers willing and able to pay

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<sup>1</sup> This statement of course holds true only to the extent that mills in different countries use raw materials of equal quality. Again, it does not apply to manufacturers who are forced by national commercial policy to buy raw materials in compensation or other dear markets.

<sup>2</sup> If merchants in countries importing textile raw materials have to pay transportation charges by land or by sea, so do merchants in the raw material producing countries where the commodity must be transported from plantation, ranch or farm to industrial centres. Comparative transportation costs depend not only on distance but also on the comparative rate structures of railroads and shipping lines.

should, regardless of their nationality, be equally welcome. The practice of selling domestic or colonial supplies of raw textile materials to home mills at lower prices than to foreign mills is a form of discrimination of which economic nationalists have not as yet thought. Very rare in the marketing of textile raw materials are also the practices of setting quantitative restrictions on volume of exports, or of allocating export quotas to particular countries, with a view to discriminating against foreign purchasers as a group or among particular sets of foreign purchasers<sup>1</sup>

It is significant that most of the world's great exporters of textile manufactures are countries which have to import all, or a very large proportion, of their raw materials. This is true, for example, of the United Kingdom, Japan, France and Germany, as regards both cotton and wool, of the United Kingdom as regards flax and jute, of France and Switzerland as regards silk, etc. With particular reference to the relation of colonies to raw materials, the truly colonial areas of the world are negligible suppliers of cotton, wool, silk, jute, hemp and flax. The largest percentages produced by the colonial areas in 1933-1934 were 6.0 in the case of hemp and 2.9 in the case of silk. These percentages, however, represented entirely the production of colonial areas (Formosa and Korea) belonging to Japan, the country which, together with Germany and Italy, has been foremost in posing the question of colonies and raw materials. Moreover, Japan and Italy together produced well over four-fifths of the world's raw silk and over a fourth of the world's true hemp. In other words, no rearrangement of the world's present colonial areas could possibly enable the non-colonial or minor colonial powers even to approach substantial independence with regard to supplies of textile raw materials<sup>2</sup>. As disclosed by the analysis in Chapter VI, the overwhelmingly important areas for the production of all textile raw materials are the completely sovereign or completely tariff-autonomous countries of the world<sup>3</sup>.

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<sup>1</sup> Crop restriction schemes (raw cotton in the United States, raw jute in

In brief, although costs of production undeniably vary in textile manufacturing from country to country and from district to district within the same country, they do not and cannot vary greatly on raw material account

### 3 — *Labour Costs*

It follows from the above analysis that the differences which prevail between countries and districts in their costs of producing textile goods have to be imputed primarily to costing variations as regards labour, power, freight, methods of marketing and financing, obsolescence and depreciation. For reasons already indicated, only the variations in labour costs will be considered here in detail.

Labour costs per unit of output are determined by two factors (1) wage rates, and (2) labour productivity. Presumably, if the economic system functioned rationally, wage rates would be determined, at the margins of analysis, by productivity. The economic system, however, is rife with frictions which inhibit the determination of wage rates by labour productivity alone.<sup>1</sup>

In the present state of statistical information relating to the textile industry, it is not feasible to work out computations which would permit international comparisons of labour costs per unit of output in textile manufacturing generally, as jointly determined by wage rates and labour productivity. For lack of other data on this important point, and despite its many defects and limitations, an international survey of the ring-spinning of cotton yarns up to 40 counts, made by the Fuji Gas Spinning Company in the latter part of 1932, is here reproduced as highly suggestive. Using data on weekly wages per worker, number of workers per 1,000 spindles and weekly mill consumption of raw cotton per 1,000 spindles—all on a single-shift basis—the survey calculates wage outlays per bale of raw cotton mill-consumed for Japan and ten other countries.

Before presenting and commenting on the results of this survey, a number of important reservations must be advanced. First, to the degree that the findings have any validity, that validity is confined to the spinning by ring spindles of cotton yarns up to 40 counts, and that with specific reference to the last half of 1932. Second, the category of cotton yarns up to 40 counts is anything but homogeneous, so that part of the international differences in the figures may arise merely from appreciable differences *within* that range in average count of yarn spun. Third, the figures are based on

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<sup>1</sup> See also Chapter X

information collected by Japanese engineers during visits to a sample of mills in each of the countries concerned, a procedure which leaves the representative character of the national samples an open question. Fourth, it is not clear whether by the term "bales" is meant bales of a standard weight or running bales, in the latter case not inappreciable errors might be introduced. Fifth, despite the fact that all the figures are on a single-shift basis, it is not indicated whether weekly machine-hours are the same in all cases. Sixth, it is not indicated whether spinners only are included, or cleaners, oilers, carriers, etc., as well. The results presented in table 13 must, therefore, be regarded as nothing more than roughly indicative of general levels.

TABLE 13 — WAGES, OUTPUT, AND PER UNIT COSTS, COTTON MILL OPERATIVES ENGAGED IN SPINNING YARNS UP TO 40 COUNTS, RING SPINDLES, LAST HALF OF 1932  
(at prevailing exchange rates, December 1932)

Country	Weekly wages per worker (in yen)		Number of workers per 1,000 spindles	Weekly wage bill per 1,000 spindles (in yen)	Weekly output (mill consumption of raw cotton) per 1,000 spindles (in bales)	Weekly wage bill per unit of output	
	At par	At December 1932 rates				In yen per bale	As percentage of Japanese wage bill
China (a)	(3 7)	3 7	8 9	32 9	2 8	11 8	89
Japan	(5 8)	5 8	6 1	35 3	2 7	13 2	100
United Kingdom	(18 0)	29 2	4 0	116 8	2 3	50 8	385
British India	(5 5)	9 07	15 0	136.1	2 4	56 7	424
Czechoslovakia	(10 0)	24 1	5 5	132 6	2 3	57 7	437
Italy	(11 0)	25 6	5 5	140 8	2 4	58 7	445
Germany	(13 0)	30 8	4 5	138 6	2 3	60 3	457
France	(12 0)	29 6	5 5	162 8	2 4	67 8	514
Switzerland	(14 0)	33 4	5 0	167 0	2 3	72.6	550
Netherlands	(14 0)	32 8	5 5	180 4	2 3	78 4	594
United States	(35 0)	84 0	3 4	285 6	2 4	119 0	902

Note — See important reservations in text

(a) Japanese-owned mills only

the countries which compete in textile manufacturing with Japan, from four to nine times as high as the Japanese level when calculated at the rates of exchange then prevailing, even when calculated at former gold parities, the divergence was from 90 to 400 per cent. What this margin of difference meant in competitive ability cannot be determined with any certainty, in the absence of exact data indicating the proportion of labour unit costs to total unit costs for each country concerned. All that can be said is that, if the original data are reliable, then Japan's total unit costs for ring-spinning cotton yarns up to 40 counts must, in the latter half of 1932, have been considerably lower than those of any other major manufacturing country except China (Japanese-owned mills).

Using the data in table 13, an approximate calculation of labour productivity in cotton mills in the United States, Japan and the United Kingdom during the latter half of 1932 has been made. It must be stressed that the results, as shown in table 14, are subject to all the limitations of the original data of table 13, with the additional qualification that the average number of hours per single-shift operating week has been only approximately estimated for each of the three countries.

TABLE 14 — ESTIMATED LABOUR EFFICIENCY OF COTTON OPERATIVES ENGAGED IN SPINNING OF YARNS UP TO 40 COUNTS, JAPAN, UNITED KINGDOM AND UNITED STATES, LATTER PART OF 1932

(in bales of raw cotton, mill consumed, per 1,000 man-hours)

Country	Estimated operating week (in hours)	Number of workers per 1,000 spindles	Man-hours per 1,000 spindle operating week	Raw cotton mill consumed per 1,000 spindle operating week (in bales)	Throughput of raw cotton per 1,000 man-hours (in bales)
Japan	53.9	6.1	328.8	2.7	8.2
United Kingdom	41.2	4.0	164.8	2.3	14.0
United States	42.1	3.4	143.1	2.4	16.8

It would be altogether misleading to suppose that the figures of throughput per man-hour given in table 14 come anywhere near exactly measuring differences in the level of labour productivity for the three countries concerned. Nevertheless, the determinations as they stand are suggestive.

Also using the Fuji Gas data as the basis of his calculations, a British economist has estimated labour productivity and labour costs (the latter at 1936 rates of exchange) as shown in table 15

TABLE 15

	Productivity (lbs per man-hour)	Labour costs (a) (pence per pound)
Japan	3.1	0.53
United Kingdom	4.5	2.20
United States	5.6	3.33
Germany	4.3	2.91
Switzerland	3.4	3.49
Italy	3.3	2.89
France	3.2	3.16
Netherlands	3.2	3.84
India	1.0	2.43

(a) Labour costs re-expressed at present rates of exchange

SOURCE — C. CLARK 'Textile Production Cost in Britain and Japan', *Manchester Guardian Commercial* 2 Oct. 1936 p. 28.

His analysis, despite differences in specific results obtained, confirms the general conclusions indicated in table 14. Labour productivity and labour costs rise in the order Japan, the United Kingdom, the United States. Labour costs, however, rise much more rapidly than labour productivity, which means that wage rate differences are primarily responsible for the spread in labour costs.

#### 4 — International Cost Comparisons

International comparisons of unit labour and raw material costs for similar yarn counts and similar cloth constructions are fragmentary, and the most authoritative recent fragments are restricted, for all practical purposes, to comparisons between cotton manufacturing in Japan and the United Kingdom. Table 16 presents a widely used and highly regarded comparison of Japanese and Lancashire costs for four representative constructions of cotton cloth in 1931.

In all the constructions of cloth concerned, United Kingdom mills in 1931 had total costs of production from 20.2 to 23.0 per cent higher than mills in Japan. These percentages were calculated, however, at the pre-depression official parities of both currencies. Inasmuch as both currencies were depreciated in 1931-1932, the yen to a greater extent than the pound sterling, the

margin of production costs in favour of Japan early in 1932 must have been greater than table 16 suggests

TABLE 16 — JAPANESE AND LANCASHIRE COSTS, SELF-SPUN COTTON CLOTHS, 1931  
(in percentage of total costs)

Cost item	Dragon C		Soldier		Two gears		Light in bamboo	
	U K	Japan	U K	Japan	U K	Japan	U K	Japan
Raw cotton	55	66	53	64	52	64	50	60
Labour	24	10	26	13	24	11	27	14
Other	21	24	21	23	24	25	23	26
Total	100	100	100	100	100	100	100	100
Total Pence per piece	116 4	95 9	136 4	113 1	107 0	87 0	85 4	71 1
Japanese total = 100	121 4	100 0	120 6	100 0	123 0	100 0	120 2	100 0

Note — The percentages given above are calculated from costs in pence per piece. The Japanese costs are converted to sterling at 3d to the yen, the rate of parity which prevailed before the two currencies were depreciated.

SOURCE: P. L. P. Report on the British Cotton Industry 1935 p. 63

A detailed analysis of textile production costs in the United Kingdom and Japan as regards cotton spinning, cotton weaving and silk and rayon manufacturing has been made by a British economist<sup>1</sup>. There follows below a summary of his findings, which are based for the most part on official statistics of the two countries concerned, these conclusions are presented for their suggestiveness, despite the reservations with which many particular points might have to be judged.

*Cotton spinning*<sup>2</sup> — Although Lancashire and Japanese mills produce different average grades of yarn and consume different average qualities of raw cotton, the average spinning margin in 1933 worked out at almost exactly the same figure in the two countries 3d per lb in Great Britain and 2.97d in Japan. At an average spinning margin of 3d per lb, British mills must carry on production at a "substantial loss" while Japanese mills can operate "at a handsome profit". In 1933 the

<sup>1</sup> C. CLARK "Textile Production Costs in Britain and Japan: A Detailed Analysis", Parts I and II, *Manchester Guardian Commercial*, 2 Oct. and 9 Oct. 1936, "British and Japanese Costs of Production: The Silk and Rayon Industry", *ibid.*, 30 Oct. 1936.

<sup>2</sup> Summarised from *Manchester Guardian Commercial*, 2 Oct. 1936.

analysis of costs of production in the two countries worked out as a percentage of sales as follows

	Great Britain (spinners and doubblers)	Japan (spinners)
Materials	70 6	63 3
Fuel and power	3 3	3 8
Wages	24 1	4 8
Salaries	2 3	28 1
Other costs and profit	0 3 *	
Selling price	100 0	100 0

\* Loss deduct

In 1933, the net annual values produced by Japanese and British spinning operatives were substantially equal £108 per worker for spinners and doubblers in Great Britain, and £108 and £54 per worker for spinners and doubblers respectively in Japan. Despite the exactly identical net value added by spinners and doubblers in Great Britain and by spinners alone in Japan, British spinners and doubblers received £85 yearly, while Japanese spinners and doubblers received only £14 yearly. In other words, about 75 per cent of the net value added went to pay wages in Great Britain, while in Japan the proportion of net value added which went to pay wages varied between 13 and 25 per cent. The values were as follows

*£ per worker per annum*

	Great Britain (spinners and doubblers)	Japan Spinners	Doubblers
Materials	260	190	171
Net value added	108	108	54
Sales	368	298	225
Wages	85	14	14

If the yen exchange rate were to return to 2s, the Japanese labour costs in the spinning of low-count yarns would still be no more than 0.9d per lb and still very much lower than in any other country. In fact, since 1932, Japanese labour costs have been reduced very rapidly. There has been a 20 per cent reduction in the number of female operators required.



of production as percentage of sales value compared in 1933 for cotton weaving establishments in the two countries were as follows

	Great Britain	Japan
Cotton yarn	51.7	} 76.9
Other materials	12.1	
Fuel and power	1.6	2.1
Wages	19.2	4.8
Salaries	2.6	} 16.2
Other costs and profit	9.8	
Sales	100.0	100.0

The earnings and productivity of workers employed in cotton weaving in the two countries were in 1933 as follows

*£ per worker per annum*

	Great Britain	Japan
Materials	25.3	20.1
Net value added	11.4	5.3
Sales	36.7	25.4
Wages	8.0	1.3

Thus weaving workers in Great Britain produced net values more than twice as great as weaving workers in Japan. On the other hand, weaving workers in Great Britain received annual wages more than four times as great as the annual wages received by weaving workers in Japan. Thus the relatively low wage cost per yard of Japanese loom-woven cloth would appear to be attributable to differences in wage level more than to differences in productivity. As for costs of finishing, these average about 0.4d per yard in Japan and in Great Britain about 1.9d per yard.

*Woollen and Worsted* <sup>1</sup> — In the past, Japanese prices for woollen and worsted goods have been above British. At present the differential depreciation of the two currencies concerned is bringing Japanese prices "within competitive range." The cost of production in the two countries in 1933 may be analysed as follows

*Percentage of sale*

	Great Britain	Japan	
		Spinning	Weaving
Materials	59.6	62.6	32.0
Fuel and power	2.3	2.0	2.4
Wages	18.6	4.3	6.9
Salaries	3.4	} 31.1	8.7
Other costs and profit	16.1		
Sales	100.0	100.0	100.0

<sup>1</sup> Summarised from *Manchester Guardian Commercial*, 9 Oct. 1936

Productivity and wages in 1933 compared as follows

	<i>£ per worker per annum</i>		
	Great Britain	Spinning	Japan Weaving
Materials	251	276	226
Value added	171	151	42
Sales	422	427	268
Wages	83	19	19

*Silk and Rayon* <sup>1</sup> — Even allowing for the considerable advantages which Japanese silk weavers derive from paying only half the price which British silk weavers have to pay for yarn, the margin between selling prices for silk piece goods in both countries is "astonishing". In 1933 at current rates of exchange, significant varieties of Japanese silk piece goods sold at prices *ex works* (pence per yard) ranging from 5.71 to 18.9. Average British prices for silk piece goods in that same year (pence per yard) ranged from 36.1 to 62.5. As compared with gross output per British silk weaving worker of £480 a year, Japanese workers in the silk weaving industry produced in 1933 gross annual outputs which, if converted into British prices for similar qualities of product, would average £320. Costs of production in the two countries as percentages of sales value compared in 1933 as follows

	Great Britain (spinning (silk only) and weaving)	Japan (weaving)
Materials	61.5	74.5
Fuel and power	5.0	1.1
Wages	24.0	7.1
Salaries	4.0	0.7
Other costs and profits	5.5	16.6
Sales	100.0	100.0

Finally, costs of producing rayon of 120 denier compare as follows

	<i>Pence per lb</i>	
	Great Britain	Japan
Pulp	1.54	1.59
Chemicals	5.35	2.60
Wages	6.90	1.51
Power	3.19	1.59
Other working charges	3.78	1.09
Total	20.76	8.38

The cost and productivity data presented above for entire textile trades, as national averages, inevitably blot out differences between the various categories of textile establishments. Similarly, computations of labour productivity and of annual wages on the

<sup>1</sup> Summarised from *Manchester Guardian Commercial*, 30 Oct. 1936

basis of national averages do not permit differentiation among skilled, semi-skilled and unskilled workers. However, the national averages relating to Japan and the United Kingdom disclose such wide discrepancies as to indicate strongly the probability that Japan's great competitive strength is derived from low wage rates more than from any other single factor.

Taking all the relevant evidence together, two principal conclusions emerge. First, in cotton textiles at least, Japan's unit costs on labour account would be, on the most conservative basis, a fourth that of the corresponding costs in any other major manufacturing country except China. Second, the percentage of labour to total costs in Japan would be, on the most conservative basis again, less than a half of the corresponding percentages in any of the other leading manufacturers of cotton textiles except China.

In thus laying stress upon Japan's advantages in labour costs it is not intended to deny that country's possession of other substantial advantages. First, the commercial organisation of textile manufacturing in Japan, as pointed out above, is better designed to develop a maximum of export trade than that in any other country. Second, it has also been shown in earlier chapters that Japan's existing plant and equipment for the textile industry is highly mechanised and modern. Third, textile machinery in Japan ordinarily runs double shift, fairly long hours, and over six days a week. To the degree that such elements as obsolescence, depreciation, and amortisation enter into costs of production, Japan is here at a distinct advantage over many competitors, notably the United Kingdom, where single-shift operations are the rule. Fourth, the machine productivity of cotton textile equipment in Japan is no less, if not higher, than that of corresponding equipment in other countries. For illustrative purposes, table 17 compares average spindle productivity per 48-hour week in Japanese and British mills, 1932.

TABLE 17 — COTTON YARN PRODUCTION PER SPINDLE PER  
48 HOURS, JAPAN AND UNITED KINGDOM, 1932  
(in quantum)

Counts	Japan	United Kingdom
100	28 80	
80	31 68	24 96
60	36 86	30 24
40	42 24	36 10
30	39 1-40 3	37 20
20	49 54	43 48

Since 1932, moreover, spindle productivity in Japan has been rising rapidly<sup>1</sup> Using somewhat conventional weights to determine average count yarn—but using the same weights for each year—it has been possible to make the computations shown in table 18 According to this table, in the last half of 1932, for example, the average spindle-hour yielded exactly the same volume of yarn as in the first half of 1936 Between the two periods, however, the average yarn count (as determined somewhat conventionally) had risen from about 28 to about 35 In short, Japanese spinning mills were coming to spin a much finer average quality of yarn with no greater expenditure of machine effort The importance of this achievement, from the economic point of view, is self-evident, but the achievement is equally important technologically, for the higher the count of yarn the less the weight of yarn that can be spun in a given time by the same machinery

TABLE 18 — AVERAGE COUNT SPUN AND SPINDLE PRODUCTIVITY,  
JAPANESE RING SPINDLES, 1931-1936  
(output in quantum)

	1931		1932		1933		1934		1935		1936	
	Jan - June	July- Dec	Jan - June	July- Dec	Jan - June	July- Dec	Jan - June	July- Dec	Jan - June	July- Dec	Jan - June	July- Dec
Average count	23 4	25 5	27 5	27 8	30 4	30 1	32 0	34 7	35 6	34 0	35 1	
Output per spindle- hour		.		4 50	4 57	4 57	4 57	4 64	4 53	4 40	4 50	

Note — Average count from output data, taking counts up to 19 as averaging 10, 20-22 as 21, 23-44 as 34, and 45 and over as 60

SOURCE — COTTON SPINNERS' ASSOCIATION OF JAPAN *Menshi Roseki Tyo Sankosho* (Quarterly Report of Cotton Spinning), 1931-1936

Loom productivity in the cotton textile industry of Japan also made considerable advance between 1927 and 1932<sup>2</sup> Figures of yardage of cloth per loom day for nine major cotton textile undertakings show rates of improved yield which in some cases run as high as 50 per cent The data are presented in table 19.

<sup>1</sup> See Chapter XII, pp 299-300

<sup>2</sup> Compare Chapter XII, p 299

TABLE 19 — COTTON CLOTH PRODUCTION PER LOOM PER DAY,  
JAPAN, 1927, 1932, NINE MAIN COMPANIES  
(yards)

Company	1927		1932	
	Jan - June	July-Dec	Jan June	July Dec
Kinkwa	40 63	42 52	54 92	59 49
Fuji	43 12	39 48	61 25	59 30
Nisshin	43 80	43 68	74 97	71 79
Toyo	51 75	52 01	67 53	66 99
Dai Nippon	52 61	55 97	72 18	73 69
Kanegafuchi	64 91	64 96	68 67	68 59
Toyoda	86 43	84 78	84 26	83 40
Kurashiki	91 19	51 20	73 00	69 53
Hutteri	91 82	83 37	122 09	116 06

Source: P L P Report on the British Cotton Industry 1935 p 117

In laying stress upon differential wage rates as a factor in the competitive ability of Japan, there has been no intention of singling out this country for any particular criticism. The case of Japan has been developed at length only because it constitutes the most striking example of how the terms and conditions of employment in particular countries bear profoundly upon the economic well-being of textile workers in all countries which participate in the world trade in textiles. The differences in national levels of wages and working hours, and the underlying causes of such differences, will be discussed in Chapters X and XI.

## CHAPTER IX

### THE COMPOSITION OF THE LABOUR FORCE

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In examining the economic aspects of the world textile industry, especially in the preceding three chapters, references were made to the influence and effects of the labour factor in the industry. The character of the workers, for instance, their skill and working habits, their mobility, etc., have their part in determining the structural changes described in Chapter VI. The importance of labour costs in total costs of textile production makes wages, hours of labour and working conditions vital factors in shaping the character and outcome of international competition in the world trade in textiles. An understanding of the world textile industry thus calls for a careful consideration of labour conditions in the industry.

On the other hand, the effects which the economic conditions of the industry have upon labour raise important questions from the larger point of view of human relations and social justice. Who are the workers who carry on the industry and help to make it what it is? What place have they in the industry? What is their reward for their labour and how does it compare with that of workers in other industries? What have the structural changes in the industry meant to the lives of the men, women and young people who have entered the industry in order to secure a livelihood? How have competitive practices in the industry affected working conditions, hours of labour, employment and unemployment? What general problems—economic and social—have the varying fortunes of the industry raised for those who call themselves and want to be textile workers?

Difficult though it was, the attempt was made in the preceding chapters to treat the economic aspects of labour in the industry separately. These economic aspects will be kept in mind also further on. But the chapters which follow will deal with the labour

aspects of the industry essentially and primarily from the social point of view—that is, of the effects of the industry upon the economic and social condition of the workers

Accordingly, four main questions will be considered in this and following chapters (1) the composition of the labour force in the industry, (2) wages, (3) hours of work and their regulation, and (4) employment and unemployment. This chapter will deal with the question of the composition of the labour force and its effects

## I — NUMBER OF WORKERS

The total number of persons gainfully occupied in the textile industry throughout the world may be estimated at roughly 14 million. The figures are given in table 1, and cover, it is believed, practically all countries in which the number of textile workers is over 50,000, with the exception of China.<sup>1</sup> These figures, based on population censuses, include owners and managers, independent workers, home workers, assisting members of the family, etc., in fact all persons who declared their occupations to be connected with the textile industry. They thus include a certain number of persons who are not workers in textile *factories*. The figures relate to different dates, but the majority refer to the years 1930-1931.<sup>2</sup>

It would have been of interest to have had also the total number of employees in textile factories, which together with the numbers unemployed would have given an estimate of the total "labour force", but the data are not available for making such an estimate. For most countries the total number of factory workers is not available, and the same is true of the numbers of unemployed textile workers.<sup>3</sup> While in the more advanced industrial countries the great majority of persons occupied in textile industries are factory workers, this is less true of certain other countries, particularly India, Japan and China. For India and Japan statistics are available as to the number of workers in "factories", which show a very considerable difference from the figures of gainfully occupied given in the population censuses. The number of non-factory workers (i.e. home workers,

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<sup>1</sup> This table as well as tables 2, 3, and 4 are summaries of the detailed data presented in Volume II, Part II.

<sup>2</sup> See note, Part II of Volume II for further details as to the scope of these data.

<sup>3</sup> See, in this connection, Chapter XII.

independent workers, etc) in India and Japan is apparently so great that it is preferable to adopt the factory figure rather than the population figure in trying to arrive at a world total. For China, no statistics of the gainfully occupied are available as no population census exists, but estimates are available as to the number of factory workers in certain provinces, as given in the statistical tables of Volume II.

TABLE 1 — PERSONS GAINFULLY OCCUPIED IN THE TEXTILE INDUSTRY AND PERCENTAGES OF THE TOTAL GAINFULLY OCCUPIED, BY SEX

Country	Source	Date	Number gainfully occupied in the textile industry	Percentage of total gainfully occupied		
				Both sexes	Male	Female
Germany	Population census	1933	1,117,582	3 46	2 56	5 09
Austria	Population census	1934	83,743	2 64	1 66	4 57
Belgium	Census of industry and commerce	1930	256,705	6 84	4 79	12 55
Brazil	Population census	1920	88,369	0 92	0 38	3 93
Canada	Population census	1931	54,710	1 39	0 94	3 60
Spain	Population census	1920	207,152	2 69	1 25	12 22
United States	Population census	1930	1,217,441	2 49	1 87	4 71
France	Population census	1931	920,460	4 26	2 70	6 96
Great Britain and Northern Ireland						
Great Britain	Population census	1931	1,338,152	6 36	3 70	12 63
Northern Ireland	Population census	1926	104,706	18 35	8 90	38 78
Hungary	Population census	1930	53,242	1 39	0 85	2 93
India	Population census	1931	3,844,931	2 53	2 25	3 13
Italy	Pop	1931	731,363	4 24	1 22	14 66
Japan		1930	1,488,941	5 03	2 86	8 92
Mexico	Population census	1930	87,758	1 59	1 36	5 33
Netherlands	Population census	1930	88,295	2 77	2 40	3 93
Poland	Census of industrial establishments	1934	146,855 <sup>1</sup>			
Portugal	Population census	1930	56,432	1 52	0 94	2 15
Sweden	Population census	1930	62,752	2 17	1 12	4 51
Switzerland	Population census	1930	109,718	5 65	3 33	10 69
Czechoslovakia	Population census	1930	367,686	5 26	3 26	9 29
U.S.S.R.	Employment statistics	1936	893,400	—	—	—
Total <sup>2</sup> (approx.)			13,320,000			

<sup>1</sup> Gainfully employed, excluding unemployed

<sup>2</sup> The world total, including factory workers (factories employing 30 persons or more) in 14 provinces of China (599,138), and an estimate of 200,000 for countries not included in the above list, may be set at a little over 14 million. If instead of the gainfully occupied in textiles in India and Japan, only factory workers in these two countries are included (738,151 in India, and 1,080,931 in Japan), the total is about 10½ million. The average percentages of the total gainfully occupied in textiles were 3 71 for both sexes, 2 25 for males, 7 55 for females, for the countries listed on the table (excluding India, Poland, and the U.S.S.R.) with a total of 8,435,000 gainfully occupied in the textile industry.



If this is done, and an allowance made for China, the total number of factory workers in the textile industry would appear to be in the neighbourhood of 10-11 million, although the numbers actually employed are, of course, less owing to the fact that many of these workers were unemployed at the date of the censuses. The most important countries numerically are the United Kingdom with 1,443,000, the United States with 1,217,000, Germany with 1,118,000, Japan with 1,081,000<sup>1</sup> and France with 920,000 gainfully occupied, while the U S S R, India, Italy and China follow with 893,000, 738,000,<sup>1</sup> 731,000 and 599,000<sup>1</sup> respectively, other countries with over 100,000 persons gainfully occupied include Belgium, Spain, Poland, Switzerland and Czechoslovakia.

In addition to the total number of workers, a further indication of the importance of the labour force engaged in the textile industry is given by the proportion of gainfully occupied persons in the textile industry as compared with those gainfully occupied in all occupations. These figures are shown also in table 1. The percentages do not show the importance of the labour force in the textile industry relative to all "industries" (in the sense of manufactures, mining, etc.), but its importance relative to the total economy of the country, and the importance of agriculture in the different countries obviously exercises an influence on this proportion.

The figures show, roughly, that Belgium heads the list with 6.8 per cent of its gainfully-occupied workers in textiles, followed by the United Kingdom with about 6.7 per cent<sup>2</sup>. Other countries with more than 5 per cent include Switzerland, Czechoslovakia and Japan. In all these countries, therefore, more than 1 in every 20 persons gainfully occupied is in the textile industry. France, Italy and Germany have somewhat similar proportions, viz 4.3 per cent, 4.2 per cent, 3.5 per cent respectively. In six countries, the Netherlands, Austria, India, United States, Spain and Sweden, the percentages range between 2.2 per cent and 2.8 per cent, roughly 1 person in every 40 gainfully occupied is connected with the textile industry. Finally, of the countries shown in the table, Mexico, Portugal,

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<sup>1</sup> Factory workers

<sup>2</sup> The highest percentage shown in the table is in fact Northern Ireland,

Canada, Hungary and Brazil have the smallest proportions, ranging from 1·6 per cent to 0·9 per cent <sup>1</sup>

## II — CHARACTERISTICS OF THE LABOUR FORCE

The total number of persons occupied, or of workers engaged in the textile industries, is, however, of little significance without some knowledge of the composition and characteristics of this body of people. The principal characteristics to be noticed here are the high proportion of female workers, the large numbers of young persons employed, and the relative proportion of unskilled and semi-skilled workers.

### *Women Workers*

From its very beginnings, textile manufacturing has relied heavily upon the employment of women workers. To-day the textile industry is still one which in almost all countries includes an especially high percentage of women in its labour force. This may be seen from table 2, which gives the percentages of females among the total persons gainfully occupied in the textile industry in the principal countries. These figures are subject to the same reservations already indicated for table 1, difference of date, of scope, etc., but they are sufficient to enable general conclusions to be drawn. The highest percentages appear to be in Italy with over three-quarters as females, followed by Portugal, Sweden, the U.S.S.R., Japan, Great Britain and Northern Ireland, and Brazil, with about two-thirds. Next in order come Austria, France, Switzerland, Spain and Czechoslovakia with about 60 per cent. Slightly lower percentages are found for Germany, Hungary and Poland (between 50 and 60 per cent), followed by Belgium with 48·5 per cent, Canada and the United States with 43·9 per cent and 41·6 per cent respectively, India 39·3 per cent, the Netherlands 34·2 per cent, with Mexico as the lowest, at 22·6 per cent. The available data would seem to indicate that over 50 per cent of all gainfully occupied persons in the textile industry are females.

The significance of these proportions is better realised when comparison is made with the relative importance of males and females in the total occupied population of the different countries. Thus, in Great Britain in 1931, of the total gainfully-occupied persons about 30 per cent were females, whereas of the total

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<sup>1</sup> See also Chapter II, pp 25-26

gainfully-occupied persons in the textile industry about 60 per cent or double were females. For the United States in 1930, the figures were 22 per cent for all gainfully-occupied females as compared with 41 per cent for the textile industry,<sup>1</sup> and for Italy (1931) the figures were 22.6 per cent for all the gainfully-occupied females as compared with 77.7 per cent for the textile industry. The proportion of females thus appears to be much higher, generally over twice as high, in the textile industry than in all industries.

TABLE 2 — PERCENTAGE OF FEMALES AMONG PERSONS GAINFULLY OCCUPIED IN THE TEXTILE INDUSTRY, IN PRINCIPAL COUNTRIES

Country	Date	Gainfully occupied in the textile industry	Female (number)	Per cent
Germany	1933	1,117,582	584,944	52.3
Austria	1934	83,743	48,875	58.4
Belgium	1930	256,705	124,519	48.5
Brazil	1920	88,369	57,548	65.1
Canada	1931	54,710	24,005	43.9
Spain	1920	207,152	123,680	59.7
United States	1930	1,217,411	506,716	41.6
France	1931	920,460	550,041	59.8
Great Britain and Northern Ireland				
Great Britain	1931	1,338,152	791,130	59.1
Northern Ireland	1926	104,706	64,959	66.8
Hungary	1930	54,242	29,077	54.6
India	1931	3,844,931	1,509,486	39.4
Italy	1931	731,363	568,224	77.7
Japan	1930	1,488,941	945,019	63.5
Mexico	1930	87,758	19,819	22.6
Netherlands	1930	88,295	30,194	34.2
Poland	1934	136,876 <sup>1</sup>	74,122 <sup>1</sup>	54.2
Portugal	1930	56,432	38,271	67.8
Sweden	1930	62,752	40,435	64.4
Switzerland	1930	109,718	65,320	59.5
Czechoslovakia	1930	367,686	215,132	58.5
U S S R	1935	805,600	518,000	64.3
Total		13,223,000	6,935,000	52.4

<sup>1</sup> Wage earners

### *Young Persons*

The textile-manufacturing industries employ not only more than the average percentage of women workers but also a larger

<sup>1</sup> It should be noted that the textile mills

proportion of young persons than other industries. However, as regards the proportion of young persons in the textile industry, it is not possible to make a complete international survey. Such comparison is complicated by the lack of data, by the differences in the age limits adopted in the different countries and by differences in the basis on which the percentages are calculated—for example, whether calculated on the gainfully occupied, on wage earners and salaried employees together, or on wage earners alone. Data for a few important countries are summarised in table 3.

TABLE 3 — PERCENTAGE OF PERSONS UNDER SPECIFIED AGES AMONG PERSONS EMPLOYED IN THE TEXTILE INDUSTRY, FOR SELECTED COUNTRIES  
(Dates as in table 2, p. 223)

Country	Under 16	Under 20 or 21			Base <sup>1</sup>
		Total	Male	Female	
Germany	6.4	23.8	17.8	27.3 (a)	W
Belgium	5.3	26.6	20.3	32.3 (b)	W
	5.0	25.1	18.1	31.8 (b)	WS
Brazil		35.5	35.5	35.5 (b)	GO
Spain		20.5	21.6	19.8 (b)	GO
United States	2.1 <sup>a</sup>	18.8	13.3	26.6 (a)	GO
France		21.5	16.1	24.9 (a)	W
		20.7	15.2	24.6 (a)	WS
		19.1	14.0	22.5 (a)	GO
Great Britain and Northern Ireland					
Ireland					
Great Britain	4.7	24.1	17.7	28.3 (b)	WS
Northern Ireland		23.8	20.5	25.5 (a)	GO
Hungary	2.4				W
Italy		31.1	15.8	35.5 (a)	GO
Japan	19.5	47.8	23.6	59.1 (a)	GO
Switzerland		16.5	10.4	20.6 (a)	WS

<sup>1</sup> The abbreviations used are as follows: GO = Gainfully occupied, W = Wage earners.

tions of young persons to total wage earners, with the exception of Great Britain, which gives the proportion of young persons to total wage earners plus salaried employees <sup>1</sup>

For young persons, figures are given for 10 countries, six of them relating to persons under 20 and four to persons under 21. As the figures relate to different dates only tentative conclusions can be drawn. For the former group, the figures range from 16.5 per cent in Switzerland to 47.8 per cent in Japan. The United States with 18.8 per cent is followed by France 19.1, Germany 23.8, and Italy 31.1 per cent. For persons under 21 the percentage ranges from 20.5 per cent in Spain to 24.1 per cent in Great Britain and 25.1 per cent in Belgium to 35.5 per cent in Brazil. The extremely high proportion in Japan should be noted almost half the persons employed being under 20.

In this comparison, again, the relative significance of these percentages of young persons in the textile industry can be appreciated better by comparing them with the percentage of young persons in the entire occupied population. In Great Britain the percentage of persons under 21 in the occupied population was as a whole 19.5 as compared with 24.1 in the textile industry. In the United States the proportion under 20 was only 9.6 per cent for occupied persons in all industries as contrasted with 18.8 per cent for textiles. In Italy the proportion under 20 years was only 19.6 per cent for all the occupied, as compared with 31.1 per cent for the textile industry. Without presenting figures for all the countries concerned, it is clear that the proportion of young persons employed in the textile industry is far higher than for all other industries combined.

It is not the purpose of the present Report to go into the reasons for the employment of such large proportions of women and young persons in textile mills, whether and to what extent due to the nature of the manufacturing processes requiring agility, deftness and attention, or to the relatively little training required for the unskilled and semi-skilled operations, to the relatively new development of certain branches of the industry in certain countries, or to other reasons. It should be noted, however, that these differences, especially for women workers, are to some extent due to social factors, tradition, or religious customs <sup>2</sup>

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<sup>1</sup> The figure for the United States is based on principal textile occupations only and is not entirely comparable with the others.

### *Skilled and Unskilled Workers*

Comparative data on the proportion of skilled, semi-skilled and unskilled workers would be of great interest if they could be secured on an exactly comparable basis. However, the difficulties in compiling such figures are almost insuperable. In very few countries do the statistics classify workers as skilled, semi-skilled or unskilled, and where the workers are classified by occupation the fundamental difficulty is whether a given occupation should be classed as skilled, semi-skilled or unskilled. To arrive at a satisfactory result, such decisions must be made in the light of the exact tasks carried on by operatives in each occupation, with due regard to the variations in duties in different countries performed by operatives in an occupation with a given designation. Identity of name does not always mean identity of tasks. In different countries the actual tasks performed by operatives in apparently similar work may, in fact, differ materially, owing perhaps to differences in the processes of manufacture. "Progress in mechanical inventions has made skill unimportant in many branches, so that the (cotton) industry has been able to use surplus labour supply" <sup>1</sup>

A classification of occupations in manufacturing industries into the three main groups of skilled trades, semi-skilled occupations and unskilled work, was attempted by an expert of the Bureau of the Census of the United States <sup>2</sup>. Following his method, the results of a classification of workers in the textile industry in the United States is given in one of the tables in Volume II. Of the total number of persons gainfully occupied, owners, operators and proprietors formed less than 1 per cent, managers and officials, 1.3 per cent, those in professional pursuits, 0.6 per cent, and persons in clerical occupations, 6.3 per cent. For the rest, the skilled trades, together with foremen and overseers, accounted for 8.0 per cent, the semi-skilled operatives, including apprentices, comprised the great bulk of the workers, 71.7 per cent, while the unskilled

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economic reason why youths or men should not be employed in ring-spinning. There are, however, certain social reasons which have been strong enough to prevent the employment of men as ring-spinners" (JEWKES and GRAY *Wages and Labour in Cotton Spinning*, Manchester, 1936, pp. 12 and 13).

accounted for 11.2 per cent. In this classification most of the machine operatives, spinners, weavers, dyers and the like were grouped together and designated as semi-skilled operatives.

The statistics of other countries do not permit of a close approximation to such a plan. In Switzerland a small group of workers are designated in the statistics of 1930 as *Hilfsarbeiter*, who clearly belong to the unskilled, but whether all those designated as *Arbeiter* should be classed as skilled or semi-skilled in the sense of the United States classification is not clear. In Germany a classification of male 'workers' was made in 1933 into groups according to skill as follows: skilled, 51,000, semi-skilled, 152,000, and unskilled, 89,000, out of a total of 292,000 male 'workers'. In this classification, owners, directors and managers, family assistants, home workers, salaried employees, including technical and administrative staffs, and apprentices, amounting to 100,000 persons, are omitted. No details are available as to the basis upon which occupations are assigned to the different skill groups.

In a few countries details of the number of persons in different occupations are published. If these occupations could be assigned on an acceptable basis to the different skill groups, these might furnish interesting material for a comparative study. However, if any such comparative figures were available on the basis of a comparable definition of skill, they would have to be related first of all to the obvious differences in the types of textile industries carried on in the different countries. Differences in the proportions of skilled or semi-skilled workers might be due merely to the greater proportion of cotton, or wool, or of linen, mills in the countries considered. Only after the differences in the relative importance of the different textile industries in the several countries had been taken into account—assuming, of course, that the definitions of the skilled, semi-skilled and unskilled were acceptable and uniformly applied in the classification of occupations—would it be possible to approach the issue whether there were real or significant differences in the proportions of skilled and unskilled workers. These difficulties are, in fact, so great that no further attempt at such an analysis can be made here.

### III — DISTRIBUTION OF WORKERS AMONG DIFFERENT BRANCHES OF THE INDUSTRY

In connection with the subjects treated in this chapter, it would be important to examine the differences in the composition of

the labour force existing in the different branches of the textile industry. The data for such a comparison, however, are not available. All that can be done here is to indicate the distribution of the total number of workers among the main branches of the industry. Even in this connection difficulties arise owing to the fact that the classification adopted in different countries is not identical. However, a rough classification into five groups, viz cotton, wool, silk (including rayon), flax, hemp and jute, and others has been attempted, as given in table 4 for 13 countries. For the other countries given in table 1 details by branch of industry were not available or the classification was such (for example by spinning, weaving, etc., rather than by fibres) that the data could not be utilised.

As may be seen from table 4, cotton is by far the largest of the textile industries, in which nearly half, or over 5 million, of the textile workers are engaged. The great majority of these are found in India. Apart from this country where special conditions obtain, the most important cotton textile countries are the United Kingdom and the U S S R with over half a million persons, the United States with about 420,000, Japan with 326,000, Germany with 215,000, and France 189,000.

The second largest group is the "all other" group, but as the contents of this group differ somewhat from country to country, no definite conclusions can be drawn from the totals of this group.

Next in importance come silk and rayon, with nearly one million and a quarter persons, or more than the numbers employed in the woollen industry. In this industry Japan and the United States are predominant with 531,000 and 205,000 workers respectively, followed by India and France with about 110,000 each. Thus, nearly 80 per cent of the persons occupied in silk and rayon are found in these four countries. For the rayon industry, for which separate figures are not given in the table, it is interesting to note that the figures for 7 countries show about 230,000 persons engaged. About one-half of these are in Japan (112,000), followed by the United States with 34,000, Italy with 29,000 and Great Britain with 21,000.

For the woollen and worsted industry, the United Kingdom takes the lead with nearly 250,000 persons, followed by Germany and France with 166,000 and 163,000 respectively, the United States follows with about 145,000, and India with 110,000. These countries cover about 80 per cent. of the total figure for the 13 countries.



TABLE 4 — PERSONS ENGAGED IN THE TEXTILE INDUSTRY CLASSIFIED  
ACCORDING TO MAJOR BRANCHES OF THE INDUSTRY, FOR SELECTED COUNTRIES<sup>1</sup>

Country	Cotton	Wool	Silk (including rayon)	Flax, hemp, jute	Other	Base <sup>2</sup>
Germany	215,482	165,885	60,895 <sup>3</sup>	65,669	348,616	GO <sup>11</sup>
Austria	21,046	12,451	4,454	6,423	39,369	GO
Canada	18,444	8,265	8,891	*	19,110	GO
United States	422,204	144,513	205,122 <sup>4</sup>	8,015	437,557	GO
France	189,434	163,099	112,308	40,914	107,181	WS
Great Britain and and Northern Ireland						
Great Britain	585,004	243,084	71,257 <sup>5</sup>	55,603	356,278	WS
Northern Ireland	137	1,146	18	68,042	35,363	GO
Hungary	*	6,807	3,744	24,970 <sup>6</sup>	17,721	GO
India	2,843,573	109,347	114,521	272,453 <sup>10</sup>	465,037	GO
Japan	126,380	69,579	531,280 <sup>7</sup>	16,126 <sup>11</sup>	137,566	WS
Netherlands	36,671	12,048	8,758 <sup>8</sup>	4,517	26,401	GO
Switzerland	35,082	8,096	13,779 <sup>9</sup>	2,833 <sup>12</sup>	26,936	WS
Czechoslovakia	115,119	51,840	22,426	40,721	110,647	WS
U S S R	516,800	85,100	26,100	141,100 <sup>13</sup>	124,300	WS
Total (approx)	5,365,000	1,081,000	1,204,000	747,000	2,452,000	

<sup>1</sup> See table 1 for the years to which the data relate. Data classified by branch of industry (e.g. cotton, wool, etc.) are not available for Belgium, Brazil, Spain, Italy, Mexico, Poland, Portugal and Sweden. In most of these cases the classification, if any, is into spinning, weaving, etc. but without distinction of fibre used. In Italy 28,527 persons were engaged in rayon manufacture, 589,091 in the manufacture of other textile fibres, and 118,935 in ancillary textile industries (including felt hats and other articles of felt).

<sup>2</sup> In most cases the figures represent the gainfully occupied. In interpreting the figures for India and Japan, see page 219. The explanation of the abbreviations used in the column describing the base is as follows:

GO, gainfully occupied and WS, wage earners and salaried employees or operatives.

<sup>3</sup> Including 19,441 engaged in rayon manufacture.

<sup>4</sup> Includes 33,982 engaged in rayon manufacturing.

<sup>5</sup> Includes 21,062 engaged in rayon spinning, data in rayon weaving, etc. not available.

<sup>6</sup> Includes 11,475 engaged in rayon manufacturing.

<sup>7</sup> Engaged in rayon manufacture.

<sup>8</sup> Includes 5,045 engaged in rayon manufacture.

<sup>9</sup> Includes cotton, also manufacture of cotton wool.

<sup>10</sup> Jute.

<sup>11</sup> Hemp.

<sup>12</sup> Flax.

<sup>13</sup> Includes 106,500 in linen.

<sup>14</sup> Excluding unemployment. Based on census of industrial establishments.

For flax, hemp and jute, the least important of the groups, with about 750,000 people covered in the 13 countries, the dominating countries are India, the U S S R and the United Kingdom with about 272,000, 141,000 and 125,000 respectively, though Germany, France and Czechoslovakia have each an appreciable number of persons in this group.

It would also appear that there are important variations among the different branches of the textile industry with respect to the

percentage which women, young persons and unskilled workers constitute of the total labour force. Wool manufacturing, for example, would appear to require a larger percentage of skilled workers than the cotton textile industry. As a result, there might be differences in the percentage of women and young persons employed in these two branches of the industry. But, as already pointed out, comparisons are impossible owing to lack of data.

#### IV — TRENDS

The various changes in the textile industry described in preceding chapters have caused important shifts in the number and composition of the textile workers in different countries. Data showing such trends—say over the past 30 years—are especially difficult to obtain on a comparable basis, since changes in the grouping of industries, in the basis of classification (whether occupational or industrial), in territory, etc., render exact comparisons impossible. Table 5 summarises the data for a few countries for which sufficiently comparable census figures can be derived from published official sources.

According to this table, Switzerland shows a sharp decrease from 178,000 workers in 1910 to 110,000 in 1930.\* This is in spite of some 5,645 persons engaged in rayon manufacture in 1930, an industry which did not figure in the returns for the earlier year. The importance of the change is limited, however, by the fact that 1930 was a year of depression. In France the figures show an apparent increase, but when allowance is made for the 72,000 textile workers of Alsace-Lorraine, the trend is shown to be a declining one. The decrease in Belgium is due in large part to the war, since the decrease occurred from 1910 to 1920, during the period following the war the industry increased rapidly from 197,000 workers in 1920 to 257,000 in 1930, or nearly as many as in 1910. Germany showed a slight decrease in the number of textile workers between 1925 and 1933, likewise Austria between 1923 and 1934 showed a small reduction of workers in textiles. Japan also appears to have had a slightly smaller number of workers employed in 1930 than in 1920, but the number has increased since. Finally, Great Britain showed a slight decrease between 1911 and 1931 in the whole group of textiles. Cotton showed a marked decline, silk more than doubled, while the ancillary textile industries, hosiery and knitted goods, showed a great increase in the number of persons employed.

**TABLE 5 — PERSONS GAINFULLY OCCUPIED IN THE TEXTILE INDUSTRY <sup>1</sup> IN 1910-1911, 1920-1921, 1930-1931**

Country	1910-1911	1920-1921	1930-1931
Germany	*	(1925) 1,206,731	(1933) 1,117,582
Austria	*	(1923) 87,540	(1934) 83,743
Belgium	263,446	196,877	256,705
Canada	20,642	33,681	54,710
United States	898,992	*	1,217,411
France <sup>2</sup>	*	(1926) 932,858	920,460
France <sup>3</sup>	(1906) 914,591	(1926) 853,064	843,828
Great Britain	1,359,000	1,293,000	1,317,000
Hungary	*	18,115	51,242
India	1	3,795,674	3,844,931
Italy	455,745	*	731,364
Japan <sup>4</sup>	*	1,381,006	1,361,173
Netherlands	60,529	66,487	88,295
Sweden	*	44,672	62,752
Switzerland	177,875	142,640	109,718
Czechoslovakia	*	264,593	367,686

<sup>1</sup> Including rayon in 1910

<sup>2</sup> Present area

<sup>3</sup> Pre-war area

<sup>4</sup> Occupational classification

**TABLE 6 — CHANGES IN PERCENTAGES OF FEMALES GAINFULLY OCCUPIED IN THE TEXTILE INDUSTRY, IN 1910-1911 TO 1930-1931**

Country	1910-1911	1920-1921	1930-1931
Germany	*	(1925) 55.8	(1933) 52.4
Belgium	60.2	54.6	48.5
Canada	45.2	51.0	43.9
United States	45.6	*	41.6
France	(1906) 55.9	(1926) 59.5	59.8
Great Britain	57.0	58.0	59.0
Hungary	*	(1920) 45.2	54.6
India	*	39.2	39.4
Japan	*	(68.9) <sup>1</sup>	63.5 (68.1) <sup>1</sup>
Netherlands	34.6	*	34.2
Sweden	*	57.9	64.4
Switzerland	62.1	62.3	59.5
Czechoslovakia	*	57.8	58.5

<sup>1</sup> Based on occupation classification

Of the countries shown in table 5, for which comparable figures could be obtained, those showing increases in the number of workers in the textile industry between 1910 and 1930 are Italy, the Netherlands, Sweden, Czechoslovakia, Hungary, Canada, the

United States and India Italy, especially, shows a marked increase of 61 per cent between 1911 and 1931 In the Netherlands the increase was 46 per cent in twenty years, in the United States 35 per cent, and in Canada 165 per cent, in a ten-year post-war period, the textile industry increased 71 per cent. in Sweden, 39 per cent in Czechoslovakia, and 194 per cent in Hungary

So far as trends in the proportion of women employed are concerned, as shown in table 6 in the thirteen countries for which figures have been calculated for the same dates, six show decreases in the proportion of women employed and seven show increases It is perhaps noteworthy, however, that of the seven countries in which the proportion of women workers increased, five are countries in which the textile industry itself showed an expansion of the labour force In two countries, France and Great Britain, in which the proportion of women increased, the industry decreased slightly in number of workers, in two countries, Canada and the United States, in which the proportion of women decreased, the number of workers in the industry increased substantially With the exception of Belgium, where the percentage of women workers decreased from 60.2 to 48.5, the changes in percentages were not great All these figures, however, are seriously influenced by the fact that the year 1930, for which comparable data are available, was a year of depressed activity in the textile industry in most countries

Trends in the proportion of young persons are more difficult to ascertain, because of the changes in the details of ages at the different censuses In the United States there appears to have been a sharp decrease in the proportion of children under 16 employed in the industry, from 8.8 per cent in 1910 to 2.1 per cent in 1930 The 1930 figure, however, is not exactly comparable with the 1910 figure, the former being based upon children employed in the principal textile occupations (see footnote to table 3) and the latter upon all persons gainfully occupied in the industry

France shows a decrease in the proportion of persons under 20 years of age, from 24.1 per cent in 1910 to 21.5 in 1930, but here again the basis on which the comparison is made is not exactly the same in the two years, the former being based upon the employers, workers and unemployed (excluding salaried employees) in textile occupations, and the latter upon the persons gainfully occupied in the textile industry In Japan, the only other country for which figures have been obtained, the proportion of young persons under 15 years of age among workers decreased from 19.1 per cent in 1920 to 14.0 per cent in 1930.

## V — SUMMARY

There are other aspects of the labour force in the textile industry which deserve attention, such are the methods of recruiting, their training, ways of living, etc. Neither the limits of this Report nor the available data make it possible, however, to do more than mention these aspects here. Some further reference will be made to them in subsequent chapters.

The points emphasised here—the high proportion of women and young persons in the industry—have importance from several points of view. First, women are frequently paid lower wages than men and the level of wages in any country is naturally affected by this fact. Any analysis of wage-data must bear this point in mind. Second, there is some relationship between multiple-shift operation and the employment of women and young persons, because, in order to make multiple shift operations economically practicable and profitable, textile manufacturers want access to a large supply of labour. Third, the regulation of working conditions is much more generally applied to women and young persons than to men. Such questions as hours of labour, overtime, minimum wages, night work, etc., are often regulated specially for women and young persons. In fact, International Labour Conventions have already been adopted on some of these questions, applying to women and young persons, by the International Labour Organisation. Social legislation of this kind is therefore of special importance to the textile industry, and, as the degree of labour protection for these classes which is enforced in different countries varies considerably, its incidence may play a part in the economic factors affecting the industry. In other words the varying composition of the labour force in the textile industry in different countries exercises an important influence through its effects on wages and hours of labour, considered in the two chapters which follow.

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## CHAPTER X

### WAGE RATES AND EARNINGS

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Wages as a factor in determining international differences in labour costs in the textile industry were considered in Chapter VIII. In the present chapter the problem is to establish what the workers in the textile industry actually earn, how wage rates and earnings have changed in recent years, how the textile industry compares with other industries, in order to see whether the textile industry is a relatively low-wage industry, and to explain some of the reasons for this condition if it is shown to exist.

However, the attempt to present the situation in the textile industry with regard to wage rates and earnings and to answer the questions raised above is circumscribed by the extent of available statistical data and by their limitations. In Volume II of this Report, a detailed analysis is given of the available information on these subjects in different countries. It is there pointed out that while statistics of wages and hours of work are relatively abundant, they are limited in many ways and do not easily lend themselves to international comparisons. Such data, however, as can be used for comparative purposes have been extracted and summarised from the tables in Volume II, so as to provide a basis for discussing the questions with which this Report is concerned.

All the figures quoted in the tables in this chapter are taken from official sources or (in a few cases) from private bodies of well-established authority. The data on wages relate almost entirely to money wages. Other factors beside money wages enter into the remuneration of labour as well as into labour costs, either directly or indirectly, e.g. paid holidays, social insurance payments, free or cheap housing, food for the operatives, etc., and in some countries these are of considerable importance. It is not possible to measure these precisely, but they must be borne in mind in any international comparisons. The available data are discussed here first from the point of view of wages per unit of time, viz. wages per hour, then

from the point of view of earnings per week, a period of varying number of hours. The movement of money and real wages in the different countries for certain dates since 1929<sup>1</sup> is then considered, followed by a comparison internationally of wages reduced to a common gold basis. Finally, the factors making for differences in national levels of wages are examined.

## I. — HOURLY WAGES

The importance of hourly wages is twofold. Taken in connection with man-hour output, hourly wages serve to determine labour costs per pound, per linear or square yard, etc. Taken in connection with the number of hours worked per week or per year, hourly wages determine weekly and annual earnings. Hourly wage rates are also significant both for showing wage changes in the same country over a series of years, and for comparing such changes in different countries. The figures given in table 1 (subject to the reservations and cautions indicated) show for the chief countries average hourly wages for 1929, 1933, 1935 and 1936 in the textile industry, distinguishing where possible the different branches of the industry, males and females, and in some cases, also skilled, semi-skilled and unskilled workers. Hourly wages in the textile industry are compared with the average hourly wage of all industries in nearly every case. Though the scope of the figures for all industries differs from country to country (such groups as mining, commerce and transport being included in some cases and not in others)<sup>2</sup> the data are nevertheless sufficient to indicate general tendencies.

The first fact of importance which emerges from tables 1 A and 1 B is that average hourly wages in the textile industry have been, in the years indicated, lower than average hourly rates for all industries together. This is so for Germany, the United States, Hungary, Italy, Japan, Sweden, Czechoslovakia and China, and is especially noticeable in Japan and Czechoslovakia. Second, the table shows that differences in this respect exist generally with regard to different branches of the industry and for male and

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<sup>1</sup> This year is taken as that in which in most countries the textile industry was relatively prosperous, and the dates selected, viz 1933, 1935, 1936, as typical years in this period.

<sup>2</sup> For further information, see INTERNATIONAL LABOUR OFFICE: *Year Book of Labour Statistics 1935-36*.

**TABLE 1 — HOURLY WAGES IN NATIONAL CURRENCIES IN THE TEXTILE INDUSTRY AND IN ALL INDUSTRIES, SELECTED COUNTRIES, 1929-1936**

*A — All Workers (Males and Females)*

Country and branch of industry	Currency unit	Males and females			
		Sept 1929	Sept 1931	Sept 1935	Sept 1936
Hourly Earnings					
Germany					
Cotton				(a)	(b)
Skilled and semi-skilled workers	} Rpf	*	(57 6) ' 1	53 5	54 3
Unskilled workers					
Worsted					
Skilled and semi-skilled workers	} "	"	(56 7) " 4	49 9	50 4
Unskilled workers					
Woollen (cloth)					
Skilled and semi-skilled workers	} "	*	(68 7) 2, 4	62 2	67 6
Unskilled workers					
Flax					
Skilled and semi-skilled workers	} "	"	(49 7) ' 4	46 1	46 6
Unskilled workers					
Silk					
Skilled and semi-skilled workers	} "	*	(65 2) " 4	61 9	62 4
Unskilled workers					
All textile branches 1					
Skilled and semi-skilled workers	}	*	(61 5) ' 4	54 9	55 5
Unskilled workers					
Austria					
Cotton	Sch	*	0 73	0 71	—
Wool	"	*	0 74	0 67	—
Silk	"	*	"	0 76	—
Hemp and jute	"	*	"	0 71	—
United States (B L S )					
Cotton goods	Cents	*	36 4	37 4	36 8
Woollen and worsted goods	"	*	48 7	49 4	49 2
Silk and rayon goods	"	*	42 7	44 4	42 5
Dyeing and finishing	"	*	49 5	53 0	50 1
All textile branches 1	"	*	"	44 7	49 8
All industries	"	*	31 4	56 3	56 6
United States (N I C B )					
Cotton (North)					
Skilled and semi-skilled workers	} Cents	41 7	42 8	44 9	45 1
Unskilled workers					
Wool					
Skilled and semi-skilled workers	} "	47 8	48 0	52 1	53 1
Unskilled workers					
Silk					
Skilled and semi-skilled workers	} "	48 4	47 3	50 8	50 1
Unskilled workers					
All industries					
Skilled and semi-skilled workers	} "	59 0	53 6	60 1	61 9
Unskilled workers					
United Kingdom				(a)	
Cotton	Pence	*	*	8 1/2	*
Woollen and worsted	"	*	*	9 1/2	*



**TABLE 1 — HOURLY WAGES IN NATIONAL CURRENCIES IN THE  
INDUSTRY AND IN ALL INDUSTRIES, SELECTED COUNTRIES, 1929-1936 (c)**

**A — All Workers (Males and Females)**

Country and branch of industry	Currency unit	Males and Females		
		Sept 1929	Sept 1933	Sept 1935
<i>Hourly Earnings</i>				
<i>Hungary</i>		(f)	(f)	
All textile branches	Pengos	0.42	0.39	—
All industries	"	0.37	0.48	—
<i>Italy</i>				(c)
Cotton	Lire	*	1.33	1.39
Wool	"	*	1.67	1.57
Silk spinning and reeling	"	*	0.75	0.77
weaving	"	*	1.42	1.47
Flax, hemp and jute	"	*	1.17	1.23
Artificial textile fibres	"	*	1.69	1.61
All textile branches	"	1.61 (f)	1.17 (d)	1.41 (d)
All industries	"	2.10	1.86	1.87 (c)
<i>Japan (Imperial Cabinet)</i>				
All textile branches	Yen	0.10 (b)	0.08 (c)	0.07 (c)
All industries	"	0.217	0.139	0.198
<i>Poland</i>		(c)	(c)	(c)
Spinning and weaving	Zł	*	0.66	0.66
All textile branches	"	(0.87)(f)	0.66	0.66
All industries	"	*	0.66	0.61
All industry and mining	"	1.03	0.78	0.72
<i>Sweden</i>		(f)	(f)	(f)
Cotton	Kr	0.75 (c)	0.77 (c)	0.79 (c)
Wool	"	0.76 (c)	0.75 (c)	0.75 (c)
Flax, hemp and jute	"	0.72 (c)	0.70 (c)	0.78 (c)
Bleaching and dyeing	"	0.83 (c)	0.81 (c)	0.81 (c)
All textile branches <sup>1</sup>	"	0.76 (c)	0.76 (c)	0.77 (c)
All mining, industry, transport, trade	"	1.12	1.10	1.12
<i>Hourly Rates of Wages</i>				
<i>China (Shanghai)</i>				(c)
Cotton spinning	Sh	*	0.040	0.041
weaving and finishing	"	*	0.035	0.035
Wool	"	*	0.051	0.058
Silk reeling	"	*	0.038 (a)	0.039
weaving	"	*	0.104	0.087
All industries	"	*	0.058	0.056
<i>Czechoslovakia</i>				
Cotton spinning	Kč	2.35 (c)	2.18 (c)	2.18 (c)
All industries	"	4.37 (c)	4.47 (c)	4.54 (c)

(a) July (b) March (c) August (d) June (e) September 1934 (f) Annual average

<sup>1</sup> Including other branches of the textile industry not shown in the table

<sup>2</sup> Figures not exactly comparable with the data for the other years

<sup>3</sup> Including clothing

<sup>4</sup> Adults only

<sup>5</sup> Female only

**TABLE 1 — HOURLY WAGES IN NATIONAL CURRENCIES IN THE TEXTILE INDUSTRY  
AND IN ALL INDUSTRIES, SELECTED COUNTRIES, 1929-1936 (continued)**

**B — By sex**

Country and branch of industry	Cur- rency unit	Males				Females			
		Sept 1929	Sept 1933	Sept 1935	Sept 1936	Sept 1929	Sept 1933	Sept 1935	Sept 1936
Hourly Earnings									
Germany				(a)	(b)			(a)	(b)
Cotton	Rpf	*	*	64 1	65 1	*	*	49 1	50 0
Skilled and semi-skilled workers	"	*	*	51 1	52 7	*	*	36 9	36 5
Unskilled workers	"	*	*	66 5	67 3	*	*	45 8	46 7
Worsted	"	*	*	56 6	57 5	*	*	17 7	38 4
Skilled and semi-skilled workers	"	*	*	72 3	72 5	*	*	59 4	59 9
Unskilled workers	"	*	*	56 2	56 6	*	*	40 4	41 7
Woolen (cloth)	"	*	*	57 5	58 9	*	*	44 2	43 4
Skilled and semi-skilled workers	"	*	*	47 2	48 1	*	*	35 7	35 7
Unskilled workers	"	*	*	71 0	72 1	*	*	57 3	57 7
Flax	"	*	*	60 5	57 7	*	*	42 2	38 6
Skilled and semi-skilled workers	"	*	*	71 0	72 1	*	*	57 3	57 7
Unskilled workers	"	*	*	60 5	57 7	*	*	42 2	38 6
Silk	"	*	*	71 0	72 1	*	*	57 3	57 7
Skilled and semi-skilled workers	"	*	*	60 5	57 7	*	*	42 2	38 6
Unskilled workers	"	*	*	71 0	72 1	*	*	57 3	57 7
All textile branches	"	*	*	71 0	72 1	*	*	57 3	57 7
Skilled and semi-skilled workers	"	*	*	60 5	57 7	*	*	42 2	38 6
Unskilled workers	"	*	*	71 0	72 1	*	*	57 3	57 7
Austria									
Cotton	Sch	*	0 87	0 89	—	*	0 66	0 65	—
Wool	"	*	0 85	0 77	—	*	0 67	0 61	—
Silk	"	*	*	0 92	—	*	*	0 65	—
Hemp and jute	"	*	*	0 80	—	*	*	0 61	—
United States (N I C B)									
Cotton (North)									
Skilled and semi-skilled workers	Cents	49 5	48 2	50 4	49 9	} 36 0	37 2	39 8	38 3
Unskilled workers	"	36 1	39 9	42 4	42 7				
Wool									
Skilled and semi-skilled workers	"	53 5	54 5	61 5	63 2	} 42 8	42 2	45 6	46 3
Unskilled workers	"	44 6	43 5	45 6	46 3				
Silk									
Skilled and semi-skilled workers	"	58 0	53 0	56 7	56 2	} 40 6	40 3	39 0	37 3
Unskilled workers	"	49 0	50 5	62 1	61 5				
workers	"	66 8	59 1	66 5	68 7	} 39 7	40 1	43 1	43 0
Unskilled workers	"	48 9	49 9	49 1	49 6				
Japan (Imperial Cabinet)				(d)					(d)
All textile branches	Yen	{ 0 164	0 148	0 115	0 138	0 093	0 066	0 065	0 087
		{ 0 166 4	0 151 4	0 139 4	0 141 4	0 102 4	0 072 4	0 071 4	0 073 4
		{ 0 279	0 268	0 256	0 257	0 104	0 078	0 077	0 079
All industries	"	{ 0 287 4	0 271 4	*	0 281 4	0 113 4	0 085 4	*	0 087 4
Japan (Bank of Japan)									
Cotton spinning	Yen	*	0 158	0 149	0 147	*	0 076	0 074	0 074
Silk reeling	"	*	0 092	0 091	0 092	*	0 063	0 061	0 064
Wool spinning	"	*	0 117	0 110	0 116	*	0 061	0 062	0 064
Wool spinning (hand)	"	*	0 147	0 141	0 137	*	0 071	0 070	0 071
Dyeing and finishing	"	*	0 144	0 131	0 131	*	0 066	0 065	0 068
All textile branches	"	*	0 142	0 134	0 132	*	0 068	0 066	0 068
All industries	"	*	0 216	0 214	0 212	*	0 072	0 070	0 071

**TABLE 1 — HOURLY WAGES IN NATIONAL CURRENCIES IN THE TEXTILE INDUSTRY  
AND IN ALL INDUSTRIES, SELECTED COUNTRIES, 1929-1936 (concluded)**

**B — By sex**

Country and branch of industry	Cur- rency unit	Males				Females			
		Sept 1929	Sept 1933	Sept 1935	Sept 1936	Sept 1929	Sept 1933	Sept 1935	Sept 1936
Hourly Earnings									
Poland			(c)	(c)			(c)	(c)	
Spinning and weaving	zł	*	0 77 1	0 77 1	—	*	0 57	0 57 2	—
All textile branches	"	*	0 78 1	0 77 3	—	*	0 56 1	0 56 2	—
All industries	"	*	0 74 2	0 70 2	—	*	0 52 3	0 50 2	—
All industry and mining	"	*	*	*	*	*	*	*	*
Sweden		(f)	(f)	(f)		(f)	(f)	(f)	
Cotton	kr	0 90 2	0 92 2	0 92 2	—	0 63 1	0 65 1	0 66 2	—
Wool	"	0 91 2	0 92 2	0 92 2	—	0 62 2	0 62 1	0 62 2	—
Flax, hemp and jute	"	0 88 2	0 91 1	0 92 2	—	0 62 2	0 65 1	0 68 2	—
Bleaching and dyeing	"	0 90 1	0 97 2	0 92 2	—	0 64 1	0 63 1	0 62 2	—
All textile branches <sup>1</sup>	"	0 92 1	0 93 2	0 91 2	—	0 64 1	0 64 1	0 65 2	—
All mining industry, transport, trade	"	1 25 2	1 22 2	1 21 2	—	0 74 2	0 73 1	0 74 2	—
Switzerland		(f)	(f)	(f)		(f)	(f)	(f)	
All textile branches	Fr	1 19 1	1 11 2	1 08 2	—	0 77 2	0 72 1	0 69 2	—
Skilled and semi-skilled workers	"	1 09 2	1 03 1	0 97 1	—	0 77 2	0 72 1	0 69 2	—
Unskilled workers	"	1 48 2	1 43 2	1 36 2	—	0 77 1	0 72 2	0 70 2	—
All industries, some transport trade	"	1 14 2	1 09 2	1 05 2	—	0 77 1	0 72 2	0 70 2	—
Skilled and semi-skilled workers	"	1 48 2	1 43 2	1 36 2	—	0 77 1	0 72 2	0 70 2	—
Unskilled workers	"	1 14 2	1 09 2	1 05 2	—	0 77 1	0 72 2	0 70 2	—
Hourly Rates of Wages									
Germany									
All textile branches	Rpf	7 16 0	63 9 1	63 6 2	67 6 2	57 5 1	50 2	50 0 2	50 0
Skilled and semi-skilled workers	"	62 1 2	51 2 2	51 1 2	51 1	41 5 2	39 8 2	39 5 2	39 5 2
Unskilled workers	"	102 1 1	79 2 2	78 3 2	78 1 2	64 0 2	52 2	51 6 2	51 6 2
All mining, industry transport	"	82 6 2	68 3 2	68 3 2	68 3 2	53 1 2	41 5 1	41 1 2	41 1 2
Skilled workers	"	80 2 1	62 8 2	62 2 2	62 2 2	53 1 2	41 5 1	41 1 2	41 1 2
Semi-skilled workers	"	82 6 2	68 3 2	68 3 2	68 3 2	53 1 2	41 5 1	41 1 2	41 1 2
Unskilled workers	"	80 2 1	62 8 2	62 2 2	62 2 2	53 1 2	41 5 1	41 1 2	41 1 2
China (Shanghai)		(c)							
Cotton spinning	Sh \$	(0 047) 1 1	0 012	0 016	—	(0 08) 2 2	0 019	0 019	—
weaving and finishing	"	(0 065) 2 2	0 051	0 055	—	(0 047) 2 2	0 014	0 014	—
Wool	"	*	0 056	0 061	—	*	0 011	0 011	—
Silk reeling	"	(0 061) 1	*	*	*	(0 049) 2 2	0 018	0 018	—
weaving	"	(0 110) 2 2	0 114	0 106	—	(0 086) 2 2	0 057	0 057	—
All industries	"	*	0 087	0 083	—	*	0 018	0 018	—

(a) July (b) March (c) August (d) June (e) September 1934 (f) Annual average

<sup>1</sup> Including other branches of the textile industry, not shown in the table

<sup>2</sup> Figures not exactly comparable with the data for the other years

<sup>3</sup> Adults only

<sup>4</sup> Figures relating to adults of over 16 years

female workers, and skilled and unskilled. While it is difficult to make generalisations on the basis of the scanty and disparate data available, it would appear that average hourly wages are lower, both for males and females, than the corresponding averages for all industries. In Poland, however, males in textiles appear to have higher wages than the average and the same is true for the silk industry in China and the United States (unskilled workers). For females, wages are higher than or equivalent to wages in general in Switzerland, China and the United States (silk), Japan (cotton spinning and weaving) and Poland. Again, the disparity between the two averages (textile and general) appears often to be greater in the case of males than in the case of females, though some exceptions to this are to be found. A third fact to be brought out is that hourly wages vary considerably in the several branches of the textile industry.

Moreover, the dispersion of wage rates of workers in the textile industry is great. That is, although the average wage in textiles is very often lower than that in industry as a whole, yet some groups of textile workers receive wages which are as high as or higher than those in other industries.

## II — WEEKLY EARNINGS

Weekly earnings are important as they show the amounts of income which the worker receives for his personal, household and other expenses. They thus furnish some indication of the workers' standard of living. Unfortunately, the available data on this subject for the years chosen are very meagre, for only seven countries has it been possible to collect data. The figures are given in table 2, distinguishing where possible males from females and enumerating also the different branches of the industry.

In view of the paucity and lack of homogeneity of the data, definite conclusions are impossible, but it may be pointed out that similar features are present for certain countries as in table 1. In the three countries for which average weekly earnings for industry as a whole are given, it will be seen that average weekly earnings in textiles are lower in the United States and in Sweden than the general level, while in Poland they are higher (both for males and females). As in the case of hourly wages, weekly

**TABLE 2 — AVERAGE WEEKLY OR MONTHLY EARNINGS IN NATIONAL CURRENCIES IN THE TEXTILE INDUSTRY AND IN ALL INDUSTRIES, SELECTED COUNTRIES, 1933-1936**

Country and branch of industry	Cur- rency unit	Males and females			Males			Females		
		Sept 1933	Sept 1935	Sept 1936	Sept 1933	Sept 1935	Sept 1936	Sept 1933	Sept 1935	Sept 1936
Weekly Earnings										
Germany			(a)	(b)		(a)	(b)		(a)	(b)
Cotton	RM	*	22 28	22 42	*	20 25	27 44	*	20 18	20 43
Skilled and semi-skilled workers	"	*	22 28	22 42	*	21 57	21 56	*	19 59	14 86
Unskilled workers	"	*			*			*		
Worsted	"	*	20 22	19 46	*	27 28	24 42	*	18 34	18 12
Skilled and semi-skilled workers	"	*	20 22	19 46	*	25 07	23 89	*	15 10	15 33
Unskilled workers	"	*			*			*		
Woolen (cloth)	"	*	24 94	25 06	*	28 54	28 44	*	21 44	21 66
Skilled and semi-skilled workers	"	*	24 94	25 06	*	25 01	25 11	*	17 25	18 17
Unskilled workers	"	*			*			*		
Flax	"	*	20 06	17 71	*	24 64	21 97	*	19 12	16 26
Skilled and semi-skilled workers	"	*	20 06	17 71	*	22 53	19 97	*	15 54	14 44
Unskilled workers	"	*			*			*		
Silk	"	*	24 24	27 44	*	28 10	32 18	*	22 94	25 12
Skilled and semi-skilled workers	"	*	24 24	27 44	*	24 70	27 79	*	16 39	16 36
Unskilled workers	"	*			*			*		
All textile workers	"	*	22 40	22 68	*	27 46	28 23	*	19 89	20 15
All industries	"	*			*	23 84	22 15	*	15 67	15 59
Austria										
Cotton	Sch	35 68	35 10	—	43 68	43 78	—	31 84	30 91	—
Wool	"	35 92	40 70	—	42 12	36 56	—	32 25	26 98	—
Silk	"	*	35 68	—	*	44 77	—	*	29 17	—
Hemp and jute	"	*	31 86	—	*	36 87	—	*	27 20	—
United States (B L S)										
Cotton goods	\$	13 11	13 17	13 51	*	*	*	*	*	*
Woolen and worsted goods	"	17 54	18 12	16 48	*	*	*	*	*	*
Silk and rayon goods	"	14 40	15 77	15 99	*	*	*	*	*	*
Dyeing and finishing	"	17 30	19 18	20 16	*	*	*	*	*	*
All textile branches	"	*	16 10	15 69	*	*	*	*	*	*
All industries	"	18 67	21 14	22 20	*	*	*	*	*	*
United States (N I C B)										
Cotton (North)	\$	15 76	16 46	17 68	18 13	18 90	10 14	13 39	13 94	4 50
Skilled and semi-skilled workers	"				14 14	16 42	17 63			
Unskilled workers	"									
Wool	"	17 48	19 55	19 33	20 72	21 87	23 84	14 75	15 77	15 95
Skilled and semi-skilled workers	"				16 80	17 81	18 29			
Unskilled workers	"									
Silk	"	16 33	16 55	18 23	19 29	20 88	21 59	13 76	12 92	13 27
Skilled and semi-skilled workers	"				15 12	14 11	20 15			
Unskilled workers	"									
All textile workers	"	19 41	22 58	25 12	22 05	25 06	28 17	14 31	15 56	15 87
All industries	"				16 04	18 65	20 26			
United Kingdom			(c)	(c)		(c)			(c)	
Cotton	s d	(31 8)	33 8	(31 1)	*	19 0 2	*	*	28 8 3	*
Woolen and worsted	"	(26 11)	38 2	(37 6)	*	31 7 2	*	*	31 3	*
Poland			(c)	(c)		(c)			(c)	
Spinning and weaving	Zl	27 68	26 86	—	33 44	32 76	—	23 24	22 25	—
All textile branches	"	27 85	26 99	—	33 75	31 06	—	23 14	22 12	—
All industry and mining	"	28 01	26 96	—	32 06	30 72	—	21 19	20 42	—
Sweden			(d)	(d)		(d)			(d)	
Cotton	Kr	36 19	33 08	—	44 76	42 67	—	31 70	29 46	—
Wool	"	34 69	33 33	—	43 07	42 91	—	29 60	28 39	—
Flax, hemp and jute	"	31 13	31 96	—	41 32	42 15	—	28 84	30 11	—
Knitting and dyeing	"	17 81	18 02	—	43 56	46 29	—	27 46	27 97	—
All textile branches	"	31 13	33 71	—	43 32	43 36	—	30 28	30 58	—
All mining, industry, transport trade	"	49 14	51 54	—	54 73	57 43	—	32 63	33 65	—

For notes, see following page.

TABLE 2 — AVERAGE WEEKLY OR MONTHLY EARNINGS IN NATIONAL CURRENCIES IN THE TEXTILE INDUSTRY AND IN ALL INDUSTRIES, SELECTED COUNTRIES, 1933-1936

(concluded)

Country and branch of industry	Cur- rency unit	Males and females			Males			Females		
		Sept 1933	Sept 1935	Sept 1936	Sept 1933	Sept 1935	Sept 1936	Sept 1933	Sept 1935	Sept 1936
Monthly Wages										
U S S R										
Cotton	Rouble	(d)	(d)	—	*	*	*	*	*	*
Wool	"	104	160	—	*	*	*	*	*	*
Flax	"	102	150	—	*	*	*	*	*	*
All textile branches	"	89	129	—	*	*	*	*	*	*
All industries	"	102	153	—	*	*	*	*	*	*
	"	126	185	—	*	*	*	*	*	*

(a) July (b) March (c) August (d) Annual average (e) October

<sup>1</sup> Including other branches of the textile industry not shown in the table

<sup>2</sup> Adults only

<sup>3</sup> Approximate figures, not exactly comparable to those of the general enquiry of October 1935, see, Vol II, Part IV

Corresponding Data for 1929 (September)

	Men and women		Men	Women
United States (N I C B)				
Cotton (North)		\$	\$	\$
Skilled workers	}	20 05	{ 24 44 18 88 }	15 77
Unskilled workers				
Wool				
Skilled workers	}	22 61	{ 26 20 22 05 }	19 30
Unskilled workers				
Silk				
Skilled workers	}	23 92	{ 28 22 27 35 }	17 74
Unskilled workers				
Great Britain <sup>1</sup>		s d	s d	s d
Cotton		34 8	*	*
Wool and worsted		39 3	*	*

<sup>1</sup> Approximate data, see Vol II, Part IV

earnings vary considerably in the different branches of the textile industry. In the U S S R, where monthly earnings are given, textile wages also appear definitely lower than in other industries.

It would be of great interest to know the annual earnings of textile workers. Such figures would form a more useful indicator of the standard of living than weekly wages, as they would show what hourly and weekly wages do not—how much the worker loses through periods of total or partial unemployment, sickness, accident,

unpaid holidays etc. Unfortunately, no data are available on this subject. Owing to the labour turnover in different establishments and other reasons, total annual pay-rolls are insufficient for measuring the annual earnings of workers. Family earnings would also be of interest for, as mentioned elsewhere, members of the same family frequently work in the textile mills, but again, data are unavailable <sup>1</sup>

### III — WAGE TRENDS SINCE 1929

Hitherto attention has been directed to the levels of hourly and weekly wages in the textile industry and its branches, to the wages of men and women, and to the wage level of textiles as compared with industry as a whole. This section deals with the *movement* of wages since 1929. The questions are: Have money wages in textile manufacturing increased or decreased, and how do wage changes in textiles compare with those in industry in general? <sup>2</sup>

The figures are given in table 3, the date September 1929 or the nearest date thereto being taken as 100 in each case and the figures for other years being expressed as percentages of this figure. With the exception of the United States and Sweden, the figures show a general fall in textile wages, a decline which is especially marked in Japan and Poland. If the changes are compared, however, with the changes in the *general level* of wages, it will be seen that of the countries included in the table, hourly wages in textiles have been better maintained during the period than in industry generally in Germany, United States, Hungary, Poland and Sweden. On the other hand, in Italy, Japan, Czechoslovakia and Switzerland, the relative decline in hourly wages in textiles was greater than that of industry as a whole, this is especially true of Japan <sup>2</sup>

For changes in weekly earnings, few data of a comparable nature are available since 1929. In the United States, however, contrary to the movement of hourly wages, average weekly earnings suffered a drastic reduction from 1929 to 1933, followed by a slight increase in 1935 and 1936, insufficient, however, to compensate for

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<sup>1</sup> On both these questions, family budgets of textile workers, if available, would be the best source of information.

<sup>2</sup> The fall in textile wages generally can be explained by the impact of the depression upon the textile industry between 1929 and 1935. The case of Japan, however, is exceptional, since the Japanese textile industry experienced a large expansion after 1931. See Chapter XIII.

TABLE 3 — INDEX NUMBERS OF HOURLY OR WEEKLY MONEY  
WAGES IN THE TEXTILE INDUSTRY AND IN ALL INDUSTRIES,  
SELECTED COUNTRIES, 1929-1936  
(1929 = 100)

Country and branch of industry	Rates (R) or earnings (E)	Males and females			
		Sept 1929	Sept 1933	Sept 1935	Sept 1936
Hourly Wages					
Germany <sup>1</sup>					
All textile branches	R	100 <sup>a</sup>	86 <sup>a</sup>	86 <sup>a</sup>	86 <sup>a</sup>
All industries	"	100 <sup>a</sup>	80 <sup>a</sup>	80 <sup>a</sup>	80 <sup>a</sup>
United States (N I C B)					
Cotton (North)	E	100	103	108	108
Wool	"	100	100	109	111
Silk	"	100	98	105	104
All industries	"	100	91	102	105
United Kingdom					
Cotton	R	(d)	(d)	(d)	(d)
Woolen and worsted	"	100	92	90	93
Silk	"	100	83	83	89
Jute	"	100	93	93	93
Flax, etc	"	100	91	91	91
Bleaching, dyeing and finishing	"	100	93	98	100
All agriculture, mining, industry, transport	"	100	84	88	89
	"	100	95	97	100
Hungary					
All textile branches	E	(c)	(c)		
All industries	"	100	84	—	—
Italy					
Textile and clothing	E	100	84	(a)	*
All industries	"	100	89	89	*
Japan (Imperial Cabinet)					
All textile branches	E	100	75	72	(b)
All industries	"	100	92	91	94
Poland					
All textile branches	L	100	78	76	—
All industries	"	100	76	70	70
Sweden					
Cotton	E	(c)	(c)	(c)	
Wool	"	100 <sup>a</sup>	103 <sup>a</sup>	104 <sup>a</sup>	—
Flax, hemp and jute	"	100 <sup>a</sup>	99 <sup>a</sup>	99 <sup>a</sup>	—
Bleaching and dyeing	"	100 <sup>a</sup>	106 <sup>a</sup>	108 <sup>a</sup>	—
All textile branches <sup>2</sup>	"	100 <sup>a</sup>	102 <sup>a</sup>	99 <sup>a</sup>	—
All industries	"	100 <sup>a</sup>	100 <sup>a</sup>	101 <sup>a</sup>	—
	"	100	98	100	—
Switzerland <sup>1</sup>					
All textile branches	E	(c)	(c)	(c)	
All industries	"	100 <sup>a</sup>	94 <sup>a</sup>	90 <sup>a</sup>	—
	"	100 <sup>a</sup>	95 <sup>a</sup>	92 <sup>a</sup>	—
Czechoslovakia					
Cotton spinning	R	100 <sup>a</sup>	93 <sup>a</sup>	93 <sup>a</sup>	93 <sup>a</sup>
All industries	"	100 <sup>a</sup>	102 <sup>a</sup>	99 <sup>a</sup>	99 <sup>a</sup>
Weekly Earnings					
United States (N I C B)					
Cotton (North)	E	100	79	82	88
Wool	"	100	77	86	85
Silk	"	100	70	71	78
All industries	"	100	68	79	88
United Kingdom					
Cotton	E	100 <sup>4</sup>	91 <sup>4</sup>	93 <sup>4</sup>	95 <sup>4</sup>
Woolen and worsted	"	100	94	94	96

(a) August (b) June (c) Annual average (d) December

<sup>1</sup> Average index numbers\* calculated by the International Labour Office from the separate indexes for men and women

<sup>2</sup> Including other branches of the textile industry, not shown in the table

<sup>3</sup> Adults only

<sup>4</sup> Approximate figures, see Vol II, Part IV



the previous losses. This was, of course, due to the great fall in employment in the industry which took the form, in part, of operating mills on shorter weekly schedules and of sharing available man-hours among the workers. In the United Kingdom average weekly earnings declined, though to a much less extent than in the United States, between 1929 and 1933 and show a small rise in the years 1935 and 1936.

A quite different aspect of the subject is that furnished by the aggregate wage-bill of the textile industry. These data show the total amounts paid in wages to all workers in textile establishments during a year and are of a quite different nature from those hitherto discussed. Wages per hour take no account of hours actually worked, average weekly earnings per worker take no account of changes in the number of workers. Aggregate wages or pay-rolls show the amounts paid to all workers in the industry and thus take account of changes in the numbers employed. Though the scope of the figures differs from country to country,<sup>1</sup> it is possible to draw a few general conclusions from the data available. Statistics for eight countries are given in table 4, in which total wages (including in some cases salaries) are expressed as a percentage of their amount in 1929.

With few exceptions (wool and silk in Canada, wool in Japan) the figures for 1933 show a drastic fall in the annual wage bill of the textile industry as compared with the figure for 1929. The fall was greater in textiles than in all industries in Switzerland, Czechoslovakia and Japan (cotton and silk). In 1936, though few data are available, such as exist show an improvement in Hungary, Japan and Canada.

These data, as shown in table 4, it should be repeated, express the combined effect of changes in wage-rates, changes in hours worked and changes in numbers employed. It is not possible to state with precision, owing to the lack of full and comparable data, how much the changes are due to each of these factors.<sup>2</sup>

#### IV — MOVEMENT IN REAL WAGES

So far changes in money wages alone have been discussed. These data, however, are significant for an evaluation of the income of the

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<sup>1</sup> For information on the scope of the statistics of this nature, see *International Labour Review*, Sept. 1936.

<sup>2</sup> See Chapter XII.

TABLE 4 — INDEX NUMBERS OF THE NOMINAL VALUE OF TOTAL  
WAGES IN THE TEXTILE INDUSTRY AND IN ALL INDUSTRIES,  
SELECTED COUNTRIES, 1929-1934  
(1929 = 100) <sup>1</sup>

Country and branch of industry	1929	1933	1934
<i>Germany</i>			
Cotton (spinning and twisting)	100	65	—
Wool (spinning)	100	74	—
Wool (weaving)	100	65	—
Silk and rayon (weaving)	100	59	—
All mining, industries, transport, trade, etc	100	58	—
<i>Austria</i>			
All textile branches	100	64	—
All mining, industries, transport, trade, etc	100	59	—
<i>Canada</i>			
Cotton	100	72	85
Wool	100	109	113
Silk	100	153	189
All industries	100	50	60
<i>United States</i>			
Cotton	100	67	*
Woollen and worsted	100	62	*
Silk	100	54	*
Other textile branches	100	64	*
Finishing	100	62	*
All industries	100	45	*
<i>Hungary</i>			
All textile branches	100	91	103
All industries	100	58	64
<i>Japan</i>			
Cotton	100	75	107
Wool	100	105	109
Silk	100	74	87
All industries	100	99	119
<i>Switzerland</i>			
Raw textiles, spinning, etc	100	66	73
Yarn, reeling, weaving, etc	100	56	53
Finishing	100	70	65
All industries, some transport, trade, etc	100	85	85
<i>Czechoslovakia</i>			
Cotton, wool mixture	100	51	—
Wool and other animal fibre	100	61	—
Silk	100	49	—
Flax, hemp, jute, etc	100	56	—
Bleaching, finishing, etc	100	61	—
All mining, industries, some transport, trade, etc	100	68	—

<sup>1</sup> Except for figures in *italic* Germany (1928 = 100), Japan and Czechoslovakia (1930 = 100)

workers only in so far as account is taken of the changes in the purchasing power of the currencies in which these wages are paid. When index numbers of wages in a country are divided by index numbers representing changes at the same dates in cost of living, it is possible to estimate changes in so-called "real wages."

It should be kept in mind, however, that cost-of-living index numbers are computed in different countries by different methods, that they vary greatly in precision and sensitiveness as instruments of measurement, and that in some cases their applicability to the wages of textile workers is questionable.<sup>1</sup> Index numbers of real wages, computed by the methods in use, indicate changes in the purchasing power of workers' wages within a country and thus partially show changes in the workers' standard of living. They do not, however, indicate variations in purchasing power or cost of living, as between different countries. For such comparisons, it would be necessary to have international cost-of-living indexes expressing the purchasing power of different national currencies and taking account of the different habits and standards of consumption in the various countries. The computation of such index numbers raises a number of theoretical and practical difficulties, and demands the use of data which are not usually available, so that it is not possible to make comparisons of the purchasing power of wages as between different countries at the same date. The following discussion therefore relates to changes in real wages within certain countries during the last few years. The data are given in table 5, they have been computed by dividing the index numbers given in table 3 by the national cost-of-living index numbers.<sup>2</sup>

From table 5, it will be seen that real wages increased in all countries during the period under review, except in Japan. In the United States, the increase was about 30 per cent from 1929 to 1933-1936 for hourly wages, for weekly wages, the increase was considerably less (owing to reductions in the number of hours worked). In most countries real wages were highest in 1933 and fell slightly in 1935-1936. As regards Japan, real wages in 1936 show a fall of about 10 per cent from 1933.<sup>3</sup>

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<sup>1</sup> For further discussion of this, see *International Labour Review*, Jan. 1937.

<sup>2</sup> For the cost-of-living index numbers used, see INTERNATIONAL LABOUR OFFICE, *Year Book of Labour Statistics 1935-36*.

<sup>3</sup> The official statistics of cost of living do not enable calculations to be made of changes in real wages since 1929. A special study, however, by the Japanese Council of the Institute of Pacific Relations contains calculations of changes

It would appear, therefore, that except in Japan, textile workers in *employment* received in 1933-1936 a larger amount of purchasing power per hour of work than in 1929, despite the fall in money wages during these years. This means, of course, that the cost of living fell more rapidly than money wages, and is explained by the tendency of wage rates to lag behind commodity prices in the cyclical movement of prices<sup>1</sup>. Were comprehensive data available for weekly earnings, however, it would probably be found that real earnings had increased much less or even decreased in the period, for as already pointed out, weekly earnings were affected by the reduction in actual hours worked. In the United States real weekly earnings slightly increased owing to the fact that the increase in wage rates after the N R A codes outweighed the decrease in hours. In Great Britain the approximate data available seem to indicate that the increase in real hourly rates was not very different from that in real weekly earnings of workers actually employed. In other countries for which data on weekly earnings do not exist, it would appear, by examining the data on changes in real hourly wages in conjunction with those on changes in hours, that real weekly earnings were slightly lower in 1936 than in 1929 in Germany, Italy and Poland, in Sweden and Switzerland probably higher than in 1929, though at a lower level than real hourly wages. In Japan, where data on hours are available only per day and not per week, real daily earnings would appear to have fallen as much as hourly wages.

More striking, however, is the picture of the changes in the purchasing power of the aggregate wages paid to all workers occupied in textile factories. These data are given in table 6 and are computed from the data in table 4 in the same way as the index numbers of real wages of table 5. For the reasons given, they can

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TABLE 5 — INDEX NUMBERS OF HOURLY AND WEEKLY REAL WAGES  
IN THE TEXTILE INDUSTRY, SELECTED COUNTRIES, 1929-1936  
(1929 = 100)

Country and branch of industry	Rates (R) or earn- ings (E)	Males and females			
		Sept 1929	Sept 1931	Sept 1935	Sept 1936
<i>Germany</i>		<i>Hourly Wages</i>			
All textile branches	R	100 <sup>a</sup>	112 <sup>a</sup>	107 <sup>a</sup>	106 <sup>a</sup>
<i>United States (N I C B)</i>					
Cotton (North)	E	100	137	131	129
Wool	"	100	134	132	132
Silk	"	100	131	127	123
<i>United Kingdom</i>					
Cotton	R	(a)	(a)	(a)	(a)
Woollen and worsted	"	100	108	103	105
Silk	"	100	97	95	101
Jute	"	100	109	107	105
Flax, etc	"	100	107	105	103
Bleaching, dyeing and finish ing	"	100	108	113	113
<i>Hungary</i>					
All textile branches	E	(b)	(b)	—	—
<i>Italy</i>					
Textile and clothing	E	100	106	108	*
<i>Japan (Imperial Cabinet) <sup>1</sup></i>					
All textile branches	E	*	100	90	(d) 91
<i>Poland</i>					
All textile branches	E	100	112	120	—
<i>Sweden</i>					
Cotton	E	(b)	(b)	(b)	—
Wool	"	100 <sup>a</sup>	113 <sup>a</sup>	113 <sup>a</sup>	—
Flax, hemp and jute	"	100 <sup>a</sup>	109 <sup>a</sup>	108 <sup>a</sup>	—
Bleaching and dyeing	"	100 <sup>a</sup>	117 <sup>a</sup>	118 <sup>a</sup>	—
All textile branches <sup>a</sup>	"	100 <sup>a</sup>	113 <sup>a</sup>	108 <sup>a</sup>	—
	"	100 <sup>a</sup>	110 <sup>a</sup>	110 <sup>a</sup>	—
<i>Switzerland</i>					
All textile branches	E	(b)	(b)	(b)	—
	E	100 <sup>a</sup>	115 <sup>a</sup>	113 <sup>a</sup>	—
<i>Czechoslovakia</i>					
Cotton spinning	R	100 <sup>a</sup>	102 <sup>a</sup>	102 <sup>a</sup>	100 <sup>a</sup>
		<i>Weekly Earnings</i>			
<i>United States (N I C B)</i>					
Cotton (North)	E	100	105	100	105
Wool	"	100	103	105	102
Silk	"	100	94	86	93
<i>United Kingdom</i>					
Cotton	E	100 <sup>a</sup>	107 <sup>a</sup>	107 <sup>a</sup>	108 <sup>a</sup>
Woollen and worsted	"	100	110	109	108

Note — The cost-of-living index numbers used are the following: 1929-1933 and 1935, annual average; 1936 average for March and June.

(a) End of December (b) Annual average (c) August (d) June

<sup>1</sup> 1933 = 100

<sup>2</sup> Including other branches of the textile industry, not shown in the table

<sup>3</sup> Adults only

<sup>4</sup> Approximate figures, see Vol. II, Part IV

be considered as only approximate. With the exception of Canada (wool and silk though not cotton), the total purchasing power of textile workers in all countries declined drastically from 1929 to 1933 or 1934. The reasons for the greater fall in total money wages than in hourly wages or weekly earnings have already been mentioned, the same reasons apply to the greater fall in "real" aggregate wages, viz a reduction in hours combined with an increase in unemployment. Since 1933, employment has generally increased and later data, when available, will probably show an increase on the figures for 1933.

TABLE 6 — INDEX NUMBERS OF THE REAL VALUE OF TOTAL WAGES IN THE TEXTILE INDUSTRY, SELECTED COUNTRIES, 1929-1934 (1929 = 100) <sup>1</sup>

Country and branch of industry	1929	1933	1934
<i>Germany</i>			
Cotton (spinning and twisting)	100	84	—
Wool (spinning)	100	95	—
Wool (weaving)	100	84	—
Silk and rayon (weaving)	100	75	—
<i>Austria</i>			
All textile branches	100	(68) <sup>2</sup>	—
<i>Canada</i>			
Cotton	100	92	108
Wool	100	139	144
Silk	100	196	240
<i>United States</i>			
Cotton	100	87	*
Woollen and worsted	100	81	*
Silk	100	71	*
Other textile branches	100	84	*
Finishing	100	81	*
<i>Hungary</i>			
All textile branches	100	(118) <sup>2</sup>	(135) <sup>2</sup>
<i>Switzerland</i>			
Raw textiles, spinning, etc	100	80	91
Yarn, reeling, weaving, etc	100	69	66
Finishing	100	86	81
<i>Czechoslovakia</i>		<sup>2</sup>	
Cotton, wool mixture	100	(55)	—
Wool and other animal fibre	100	(65)	—
Silk	100	(53)	—
Flax, hemp, jute, etc	100	(60)	—
Bleaching, finishing, etc	100	(66)	—

<sup>1</sup> Except for figures in *italics* Germany (1929 = 100) and Czechoslovakia (1930 = 100).

<sup>2</sup> Figures in brackets are based on index numbers of cost of living relating to capital costs only.

## V — WAGES IN GOLD

The preceding sections have been confined to a consideration of the workers' wages in the currency of their country and to comparisons of the changes which have occurred in individual countries during recent years. This section will deal with wages and their movement, as expressed in a uniform currency. Data on this subject are of interest primarily in so far as they bear upon labour costs as an element in international trade and competition. They are also important, however, from the point of view of the workers' standard of living to the extent that prices of food, clothing, etc., in some countries are affected by the foreign exchange value of the currencies concerned. The question of labour costs was discussed in Chapter VIII and will be considered again in Chapter XIII. It seems most expedient, however, to present the wage data on which that discussion is based in this chapter in which the wage situation of the industry is treated.

In converting wages in different countries, it is of no importance which currency is chosen, the relations between wages remain the same. It is more convenient, however, to choose a currency which has remained constant in gold content until the autumn of 1936, and for this reason the Swiss franc at its old parity is used.<sup>1</sup>

A survey of hourly wages converted into gold francs, for all textile workers and for men and women separately, is given in table 7.<sup>2</sup> On the basis of this table—which covers, however, only ten countries—it is difficult to draw definite conclusions, but certain general facts emerge which suggest that the chief textile countries may be arranged in four groups. In the first group are the countries of Asia—China, Japan<sup>3</sup> and India<sup>4</sup>—where hourly wages in gold in 1935-1936 were less than 20 Swiss gold centimes. In a second group are five countries of Central and Eastern Europe—Austria, Hungary, Italy, Poland and Czechoslovakia—where hourly rates were approximately between 30 and 45 gold centimes.

<sup>1</sup> The Swiss franc was devalued in September 1936, when the "gold bloc" was dissolved. This lowered relative wages in the former gold bloc countries.

<sup>2</sup> For the degree to which national currencies were devalued in relation to their gold parity between 1931 and 1936, see Vol. II, Part I.

<sup>3</sup> Reference should again be made to the special conditions in Japan concerning "indirect wages" (see pp. 258-259 and Vol. II).

<sup>4</sup> No data on hourly wages in textiles in India are given in this Report, but according to the figures of daily wages (see Vol. II) and the estimated number of hours of work per day (see Chapter XI) it may be assumed that wages in India fall within this limit.

TABLE 7 — HOURLY WAGES IN GOLD FRANCS<sup>†</sup> IN THE TEXTILE INDUSTRY, SELECTED COUNTRIES, 1929-1935

Country and branch of industry	Males and females			Males	Females
	Sept 1929	Sept 1933	Sept 1935	Sept 1935	Sept 1935
<i>Hourly Earnings</i>					
<i>Germany</i>			(a)	(a) <sup>2</sup>	(a) <sup>2</sup>
Cotton	*	*	0 64	0 77	0 59
				0 64	0 44
Worsted	*	*	0 60	0 80	0 55
				0 68	0 45
Woollen cloth	*	*	0 75	0 88	0 64
				0 67	0 48
Flax	*	*	0 55	0 69	0 53
				0 57	0 43
Silk	*	*	0 74	0 85	0 69
				0 73	0 51
All textile branches <sup>1</sup>	*	*	0 66	0 82	0 59
				0 65	0 45
<i>Austria</i>					
Cotton	*	0 42	0 42	0 52	0 38
Wool	*	0 42	0 39	0 45	0 35
Silk	*	*	0 44	0 53	0 38
Hemp and jute	*	*	0 41	0 46	0 35
<i>United States (N I C B)</i>				(a) <sup>2</sup>	
Cotton (North)	2 17	1 80	1 39	1 56	1 23
				1 31	
Wool	2 49	2 02	1 62	1 91	1 41
				1 41	
Silk	2 52	1 99	1 57	1 76	1 21
				1 93	
<i>United Kingdom</i>			(e)		
Cotton	*	*	0 54	*	*
Woollen and worsted	*	*	0 59	*	*
<i>Hungary</i>	(b)	(b)			
All textile	0 38	0 34	—	*	*
<i>Italy</i>			(c)		
Cotton	*	0 36	0 35	*	*
Wool	*	0 45	0 39	*	*
Silk spinning and reeling	*	0 20	0 19	*	*
weaving	*	0 38	0 37	*	*
Linen, hemp and jute	*	0 32	0 31	*	*
Artificial textile fibres	*	0 46	0 41	*	*
All textile branches (including clothing)	0 49	0 37	0 34	*	*
<i>Japan (Imperial Cabinet)</i>				(d)	(d)
All textile branches	0 26	0 09	0 07	0 12	0 06
				0 13 <sup>3</sup>	0 06



TABLE 7 — HOURLY WAGES IN GOLD FRANCS IN THE TEXTILE INDUSTRY, SELECTED COUNTRIES, 1929-1935 (*concluded*)

Country and branch of industry	Males and females			Males	Females
	Sept 1929	Sept 1933	Sept 1935	Sept 1935	Sept 1935
<i>Poland</i>				(c)	(c)
Spinning and weaving	*	0 38	0 38	0 45 <sup>4</sup>	0 33 <sup>4</sup>
All textile branches	0 52	0 38	0 38	0 45 <sup>4</sup>	0 32 <sup>4</sup>
<i>Sweden</i>	(b)	(b)	(b)	(b)	(b)
Cotton	1 05 <sup>4</sup>	0 69 <sup>4</sup>	0 62 <sup>4</sup>	0 74 <sup>4</sup>	0 53 <sup>4</sup>
Wool *	1 06 <sup>4</sup>	0 68 <sup>4</sup>	0 60 <sup>4</sup>	0 74 <sup>4</sup>	0 50 <sup>4</sup>
Linen, hemp, jute	1 01 <sup>4</sup>	0 68 <sup>4</sup>	0 62 <sup>4</sup>	0 74 <sup>4</sup>	0 54 <sup>4</sup>
Bleaching and dyeing	1 15 <sup>4</sup>	0 76 <sup>4</sup>	0 65 <sup>4</sup>	0 74 <sup>4</sup>	0 50 <sup>4</sup>
All textile branches <sup>1</sup>	1 06 <sup>4</sup>	0 68 <sup>4</sup>	0 62 <sup>4</sup>	0 74 <sup>4</sup>	0 52 <sup>4</sup>
<i>Switzerland</i>				a	
All textile branches	*	*	*	{ 1 08 0 97	{ 0 69
<i>Hourly Rates</i>					
<i>China</i>	M	F			
Cotton spinning	0 10 <sup>4</sup>	0 08 <sup>4</sup>	0 04	*	*
weaving and finishing	0 14 <sup>4</sup>	0 10 <sup>4</sup>	0 05	*	*
Wool *	*	*	0 05	*	*
Silk reeling	0 13 <sup>4</sup>	0 11 <sup>4</sup>	0 04	*	*
weaving	0 26 <sup>4</sup>	0 19 <sup>4</sup>	0 11	*	*
<i>Czechoslovakia</i>					
Cotton spinning	0 35 <sup>4</sup>	0 33 <sup>4</sup>	0 28 <sup>4</sup>	*	*

† Because hourly wages in this table have been calculated at official exchange rates as regards controlled currencies—e.g. the lira, the pengö, the Reichsmark—the labour costs shown are not strictly comparable

(a) July 1935 wages (b) Annual average (c) August 1935 wages (d) June 1936 wages (e) October

- <sup>1</sup> Includi
- <sup>2</sup> Higher
- <sup>3</sup> Earnin
- <sup>4</sup> Adults only

In a third group are countries such as Sweden, Germany and Great Britain in which hourly rates were between 55 and 75 gold centimes<sup>1</sup> The fourth group is formed by the United

<sup>1</sup> It should be noted that for several countries—Germany, Hungary, Italy—the calculations of gold wage rates have been made on the basis of official rates of exchange which, in view of the prevailing systems of foreign exchange control in these countries, overstate considerably the level of labour costs as a factor in the international competition for textile markets

States and Canada <sup>1</sup> where wages were above 1 gold franc per hour

**TABLE 8 — HOURLY WAGES IN GOLD FRANCS IN CERTAIN TEXTILE OCCUPATIONS, SELECTED COUNTRIES, 1933**

Country and wages	Cotton				Wool and worsted			
	Males		Females		Males		Females	
	Spinners	Weavers	Spinners	Weavers	Spinners	Weavers	Spinners	Weavers
<i>Germany (a)</i> Gross earnings <sup>1</sup> , piece work	0 86	0 81	0 61	0 69	0 79 <sup>2</sup>	0 91 <sup>2</sup>	0 56 <sup>2</sup>	0 78 <sup>2</sup>
<i>Austria <sup>3</sup> (b)</i> Average earnings	*	0 39	*	0 41	*	0 55	0 41	0 46
<i>Canada (c)</i> Range of predominant wage in selected establishments <sup>4</sup>	*	1 07-1 52	0 79-1 14	1 06-1 41	0 80 1 66	0 80 1 67	*	0 68 1 67
<i>China (a)</i> Piece rates	*	*	0 04	0 05	*	0 10	0 04	0 05
Time rates	*	*	0 05	*	0 06	* 0 05	0 04	*
<i>United States (d)</i> Average earnings								
North	1 78	1 84	1 57	1 79	*	*	1 75	2 07
South	1 44	1 66	1 35	1 61	*	*		
<i>France (e)</i> Wage rates	*	0 59 <sup>5</sup>	*	*	*	0 59 <sup>5</sup>	*	*
<i>Hungary (c)</i> Average earnings	*	*	*	*	0 44		0 40	
<i>Japan</i> <i>(Tokyo) (a)</i> Average earnings	*	*	0 10	0 08	*	*	*	*

The movement in gold wages since 1929 did not materially affect the relative position of the different countries, with one exception, viz Japan. In 1929, gold wages in Japan were relatively higher and approached more closely those of the second group than they did in 1935.

Average wages, however, as already pointed out, are averages of wages of men, women, boys and girls, and of skilled and unskilled, and are influenced by the proportions of these groups in the total labour force. Thus, the extremely high proportion of persons under 20 in the textile industry of Japan, as pointed out in Chapter IX, tends to lower average textile wages as compared with countries with a smaller proportion of young persons to total labour force. Similarly, the comparative proportions of males and females affect the comparative averages. In table 7, figures have been included giving for 1935 gold wages separately for males and females. The relative position of the countries is unchanged, but for wages of male workers the position of the countries in the first group of countries is somewhat improved relative to that of the other groups.

In this connection, a special table is given, table 8, for those countries where separate data are available for male spinners and weavers and female spinners and weavers, in both cotton and wool. These categories of workers—though called by the same name—are not identical in the different countries owing to the varying structure and organisation of the industry. The figures are approximate and subject to numerous reservations, yet the broad facts are interesting. The hourly wages in gold in 1933 of these various occupations group themselves in about the same order as in table 7. China is the lowest, followed by Japan and India, then come Austria and Hungary as well as probably France with gold wages several times as high, then Germany followed by Canada and the United States with gold wages at their highest level.

## VI — NATIONAL LEVELS OF WAGE RATES

Despite the scantiness of existing data, it is clear that levels of wage rates vary widely among the countries which compete in world textile markets. The differences in national levels of wage rates may be attributed to five main causes working independently or in combination. First, the level of labour productivity in the

textile industry differs from country to country. Second, the level of labour productivity in general differs between countries. Third, the conditions of supply and demand in the labour market for textile workers vary from country to country. Fourth, the bargaining power of textile workers as well as the extent and degree of State intervention on their behalf are different. Fifth, the composition of the labour force by sex, by age, or both differs in all textile producing countries.

Though the data presented in Chapter VIII are scanty, it may reasonably be supposed, nevertheless, that the spread in wage rates among countries with widely differing labour costs in textile manufacturing exceeds the spread in labour productivity *by volume*. In this connection, it should be recalled that in such countries as China and Japan, as well as in such districts as the South of the United States, textile mills are largely equipped with newer and more highly mechanised machinery. This in itself must operate as a factor in maintaining man-hour output not too far below the levels reached by the more experienced and more skilful labour of older textile regions operating upon older and less highly mechanised equipment.

A more substantial weight should be attached to international variations in labour productivity *by value* (independently of labour costs as a value element). To a measurable degree, the countries and districts where wage rates reach their lowest levels are also the countries and districts where textile production is biased most toward inferior grades of raw materials, lower yarn counts, heavier and coarser fabrics. In so far as this is so, comparisons of average wage rates between higher and lower wage-paying countries lose much of the significance they might otherwise possess, for the comparisons are then being made between wages paid for the production of different average grades of output. In other words, part of the existing international spread in textile wage rates may be taken to express spreads in average net value produced per man-hour which arise out of differences in quality and grade of product.

The specific productivity of textile workers in individual countries affects wage rates in different countries by re-enforcing or modifying a more primary influence, namely the level of general economic productivity reached in particular countries (or districts) between which labour is more or less immobile. The influence of the general level of productivity makes itself felt through supply and demand forces for textile labour. In India, Japan and in the South of the

United States, the wages of textile workers are continually subject to pressure of unskilled labourers from impoverished rural districts. Very often, employment in textile mills is the only opportunity of gainful employment to which these young men and women from farm households have real access. In other countries and districts, on the other hand, textile mills must satisfy their staffing requirements by competing in the labour market with the general run of industrial undertakings. It is the wage rate standards established in such labour markets—to the extent, of course, that labour is effectively mobile as between textile and other industrial occupations—which fix the minimum limits below which textile wages cannot fall without danger of materially curtailing the requisite supply of workers. In general, these limits are substantially above the level which suffices to attract the necessary number of textile workers away from farms into mills so located as to be able to catch up the rural exodus in gainful employment.

Wages of textile workers, like those of all other workers, are determined also to a considerable degree by relative bargaining power, as embodied in trade union organisation and otherwise, by State regulation of working conditions, and by the development of social services. Collective bargaining, labour legislation and social services (unemployment insurance, workmen's compensation laws, etc.) are important because they affect in varying ways the operation of the forces of supply and demand in the labour market. Generally, trade unions, social services and protective labour laws tend to be more highly developed in "high wage" countries and operate to maintain international differences in wages.

Finally, the varying proportion of women and young persons in the labour force also accounts for part of the existing margins in wage rates between countries and districts. To some extent, these varying proportions involve differences in average skill and craftsmanship, and thus operate through their effects on labour productivity. In part, these varying proportions involve differences in comparative bargaining power and operate through their effects on the supply of labour.

## VII — SUMMARY

The general conclusions which have been reached in the preceding sections may be briefly summarised. During the period after 1929 during which the general depression in industry continued, hourly

wages in the textile industry were reduced in nearly all countries, weekly earnings also were reduced, or declined even more than hourly earnings owing to the prevalence of short time in many countries. Owing to the decline in prices and consequently in the cost of living, the purchasing power of hourly wages has been generally maintained, even increased in some countries. The same phenomenon is true of weekly earnings, though to a much less marked extent, for those countries for which information is available. *These conclusions relate to workers in employment.* On the other hand, owing to contraction in the numbers employed and in total hours worked, total wages paid, expressed both in money and in purchasing power, show a reduction nearly everywhere. As regards wages expressed in a uniform standard, viz the gold franc, there are enormous differences between the countries of Asia, Europe, and North America.

These conclusions do not hold equally for the different branches of the textile industry, for some have fared better than others. Data are not available to enable definite conclusions to be drawn, but it would seem that cotton has fared worse than wool.

When the wage situation in the textile industry is compared with that of other industries, textile workers appear on the whole to be in a worse position than most workers in other industries in most countries. Hourly and weekly wages in the textile industry in most countries fall below the average for industry as a whole. This is due to some extent to the larger proportion of women and young persons employed in textiles, but not entirely, as wages for men and for women textile workers separately show a similar tendency toward lower wages.

It is necessary, however, to take into account other factors which are of considerable importance in considering the wage situation in the textile industry. In some cases a substantial part of the workers' income consists of items which might be called indirect wages. It is customary in such cases for employers to provide free or cheap housing accommodation and also, especially in Japan, for employers to furnish meals at special prices and other facilities. It is difficult to estimate the value of these advantages and, though it would appear that the statistics of wages in Japan and China take some account of them, it is not possible to ascertain if they are completely considered.<sup>1</sup>

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Second, family rather than individual employment is a general practice in textile manufacturing in a number of countries. Although this practice exists in other industries as well, it is more pronounced in textile manufacturing. The family income of textile workers is thus often composed of earnings received by various members of the family all engaged in textile employment.

Due allowance must be made for these facts in comparing the textile industry with other industries in the same country and in making international comparisons. For instance, the spread between Japanese and European wages would be somewhat narrowed if the extra income of Japanese workers in terms of cheap food and housing could be given appropriate weight. Similarly, an adjustment for the cheap housing which Southern textile workers in the United States receive—at least in so-called “company towns”—would reduce part of the difference between wage rates in New England and the South. Too much emphasis must not be laid, however, upon the adjustments here referred to.

With all the above qualifications, the fact remains that the textile industry in most countries is characterised by lower wages than industry in general. From a practical point of view, the textile industry thus has to consider two questions. First, what are the most effective ways and means for reducing the disparity between textile wages and industrial wages in general? Second, what are the most appropriate methods for narrowing the spread in textile wage standards on the international plane?

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## CHAPTER XI

### HOURS OF WORK

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Hours of work are closely related to wages both from the point of view of production costs and of the worker's standard of living. Output per man-hour is influenced by the number of hours actually worked, and the speed at which it is most economical to carry on manufacturing processes is itself determined in part by the prevailing working day or working week. Similarly, hours of work and wage rates per hour are interdependent. Employers often follow the practice of trying to adjust rates (both time rates and piece rates) so as to yield approximately a wage prevailing in comparable employment. Furthermore, the length of the working day or of the working week, through its effects on industrial fatigue, influences materially the hourly earnings of piece workers. Finally, hours of work are related to the question of multiple shifts. Limits to the number of hours per shift, and to the number of shifts which the establishment works per day, affect the total labour supply available, and the latter in turn influences the relative economic advantages of single, double, or multiple shift operation. At the same time, the length of the working day has certain technical bearings upon the most economic distribution of shifts during the course of the working day or working week.

From the point of view of working conditions, hours of work are important in so far as they affect total earnings, regularity of employment, earning power, and leisure. Given wage rates per hour or per piece, total weekly and annual earnings of the worker depend on the number of hours worked. In order to maintain total earnings, workers have generally demanded that a reduction of working hours should be accompanied by an appropriate adjustment of wage rates, whether on time or on a piece basis. In fact, shorter hours have often gone hand in hand with greater production, higher hourly wages and industrial expansion. In so far as regularity of employment is concerned, it has been contended that hours of work can be so adjusted as to minimise the adverse effects of seasonal and cyclical unemployment.



As regards the worker's earning power, particular emphasis must be placed upon the problem known in the United Kingdom as "staffing of machines" and in the United States as "work load, machine assignment or stretch out" From the point of view of costs and labour productivity, the question is of how textile employers, in order to offset shorter hours of work and the capital expenses of installing new plant and equipment, may increase man-hour output by speeding up the manufacturing processes, by increasing the number of spindles or looms assigned to an individual worker, by reducing the size of the labour force attached to particular groups of machines, etc There is evidence that employers in many countries have been seeking, particularly during the depression period, to increase the work load, to speed up the manufacturing process, and to introduce other practices which lead to higher output

In brief, the problem of hours, on the economic side, raises questions of costs and of adjustment to competitive conditions On the social side, it involves the possible alleviation of the workers' toil as a result of industrial progress and the possibility of providing employment for the largest number of workers and consequently of reabsorbing into production those who are unemployed

There are few countries now in which hours of work constitute a serious factor in competitive conditions on the home market, for national regulations have generally more or less standardised hours But this is far from being the case internationally The statutory hours of work differ from country to country, and it is for that reason that the question of hours as a factor in international competition is important

A distinction should be made between the normal statutory or contractual hours of work of wage earners—that is, the number of hours that each wage earner can normally be required by his employer to work per day or per week — and the hours actually worked, which may be shorter or longer than the normal ones The normal working hours are dealt with here first

## I — LIMITATIONS ON WEEKLY HOURS OF WORK

In comparing the normal hours of work in different countries it is desirable to determine as accurately as may be the total number of hours for which a worker may normally be employed during the year The factors that influence this total are the prescribed weekly hours, the length of the weekly rest, the number

of public holidays, the length of the annual holiday with pay and of maternity leave and the limits set to night work. These factors will be examined here in the order indicated <sup>1</sup>

On the basis of existing regulations,<sup>2</sup> the main textile producing countries may be divided into three groups, according to whether the regulation normal hours of work are above, equal to or lower than 48 in the week. The first group of countries in which the regulation normal hours exceed 48 in the week includes China, India and Japan.<sup>3</sup> The second group of countries in which the regulation normal hours are 48 in the week includes Austria, Belgium, Brazil, Canada, Czechoslovakia, Estonia, Germany, Great Britain,

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<sup>1</sup> The information contained in the various national regulations is not sufficiently detailed to permit of the above mentioned factors being calculated here. All that will be possible will be to outline the salient features of these regulations, in doing so, the Office may sometimes make them appear unduly rigid, for it will often be obliged to leave out of account certain details concerning exceptions that make for greater elasticity in the application of the principles laid down in the regulations. The countries selected for study comprise, first of all, those which, according to recent statistics, employ more than 50,000 workers in their textile industries. Austria, Belgium, Brazil, Canada, China, Czechoslovakia, France, Germany, Great Britain, India, Italy, Japan, Mexico, the Netherlands, Poland, Rumania, Spain, Sweden, Switzerland, the United States of America, and the U S S R. To these have been added the following countries for which information proved available: Australia, Estonia, New Zealand and Yugoslavia.

<sup>2</sup> For a description of the laws, collective agreements, arbitration awards and other methods by which hours of work in the textile industry are regulated, see *Report VII*, pp. 13-23.

<sup>3</sup> In China, the Factory Act promulgated by the National Government on 30 December 1929 and amended on 30 December 1932 provides that the normal hours of work for adults are 8 in the day, but that they may be extended to 10 to take account of special local conditions or the nature of certain operations. In a communication to the International Labour Office, dated 13 January 1934, the Chinese Government stated that owing to the prevailing economic conditions and the position of the labour market in China it was impossible to apply the 48-hour week strictly, but that everything possible was being done to establish the principle of the 48-hour week as defined by the Factory Act, and that attempts to limit the working of overtime would be continued.

Mexico, the Netherlands, Poland, Rumania, Spain, Sweden and Switzerland <sup>1</sup> The third group includes countries in which the regulation normal hours are less than 48 in the week, such as Australia (44 hours), France (40 hours), Italy (40 hours), New Zealand (40 hours), the United States (40 hours), and the U S S R (7 hours a day) <sup>2</sup>

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<sup>1</sup> In Great Britain hours of work in the different branches of the textile industry are regulated by collective agreements and, in consequence only this method of regulation, which has in practice superseded the provisions of the Factory Acts, is considered here

In Brazil, the Decree of 4 May 1932 regulating hours of work lays down the principle of an 8 hour day and a 48-hour week, but allows the normal extension of hours up to 60 in the week by agreement between employers and workers and subject to the payment of overtime rates for all hours beyond the forty eighth

In the Netherlands, the general law dated 17 September 1930 fixing hours of work at 8 in the day and 48 in the week permits hours to be extended on a certain number of days annually by agreement between the organisations of employers and workers in any given industry In pursuance of this provision the Minister for Social Affairs issued an Order permitting firms in the Tilburg wool industry to employ their workers for not more than 53 hours a week and 9½ hours a day on 65 days in the year, spread over 16 weeks, the hours worked throughout the year not to exceed 2,500

In Switzerland, the Federal Act of 27 June 1919, which introduced a 48 hour week for factories, empowers the Federal Council to extend weekly hours to 52 if this is justified by urgent necessity and, in particular if through the application of the 48 hour week an industry runs the risk of being unable to withstand competition on account of the hours worked in other countries This provision has been applied in undertakings engaged in the bleaching, dyeing and finishing of cotton and rayon fabrics in the piece and the twisting of cotton

Quite a different system of regulation was introduced in Germany by the Act concerning spinning materials, according to which hours of work may be less than 48 in the week in undertakings using materials subject to quota

There are some variations in the regulations of different countries with regard to the interpretation of normal hours. There are two distinct sets of operations involved in work with textile machines—the actual working and supervision of the machines and their maintenance, cleaning and oiling. Spindles and looms need frequent cleaning to keep them in proper working order. Under certain regulations, the actual working and supervision of the machines and also the cleaning operations are considered as making up the normal working hours. Other regulations, again, consider cleaning as part of the preparatory or supplementary tasks that have to be performed outside the normal hours of work.

In Australia, Germany, Great Britain and Spain, cleaning time is usually included in the normal hours of work. In Belgium and France, on the other hand, the time spent in cleaning constitutes an addition to the normal hours. In Austria and Czechoslovakia the situation differs under various collective agreements, or even from undertaking to undertaking.

Moreover, the time required for cleaning may vary according to the type of spindle or loom and the nature of the machinery or the transmission. In the British cotton industry, for instance, a special cleaning agreement of February 1918 distinguishes between the Oldham and Bolton types of mule and lays down different rules for three distinct areas. In the Ashton area the time allowed for cleaning mules of the Oldham or Bolton type is 2 hours a week, whereas in the Oldham area the time allowed is  $2\frac{3}{4}$  hours a week for mules of the former type and  $3\frac{1}{4}$  to  $3\frac{1}{2}$  hours for those of the latter type, according to the kind of thread produced. In France, the Decree applying the 40-hour week to the textile industry permits an extension of hours by not more than 2 hours beyond the weekly limit for the undertaking as a whole for oiling main shafting or automatic spinning frames in the jute industry, the extension is limited to  $1\frac{1}{2}$  hours for cleaning frames used for the spinning of flax, hemp, jute, ramie and substitutes for these or for cleaning self-acting mules in cotton spinning. It is fixed at from 1 hour to  $1\frac{1}{2}$  hours for cleaning machinery frames and all other productive plant in any branch of the textile industry (except those specified elsewhere), a maximum of 15 minutes a day is allowed for oiling mules in wool spinning.

#### *Distribution of Hours over Several Weeks*

In some countries the weekly hours of work may be calculated as an average over several weeks. This enables the industry to get

over the difficulties caused by the fact that hours of work are considerably reduced in textile works at certain periods of the year, more especially in the slack season. The method of averaging hours over a period can also be used to counterbalance the rush of work that comes at some seasons of the year, more particularly in the dyeing, bleaching and fabric-printing branches.

The regulations permit hours to be calculated as an average over several weeks in Belgium, Brazil, Canada, Czechoslovakia, Germany, Great Britain (bleaching and dyeing), Italy, the Netherlands, Sweden and the United States (under the N R A Codes).

Substantially the same result is sometimes achieved by making provision in the regulations for making up lost time, the textile industry can thus counterbalance, to some extent, the fluctuations in hours due to seasonal influences, to exceptional collective stoppages of work for a few hours or, at most, a few days, such as national or local holidays, or to accidental causes beyond the employer's control. Provisions of this kind exist in Austria, Estonia, France, Germany, Italy, the Netherlands, Poland, Spain, Sweden, Switzerland and the United States (under the N R A Codes).

### *Exceptions*

In most countries exceptions are generally provided so as to enable the textile establishments to meet special requirements or exceptional circumstances. The special requirements usually consist in certain preparatory or supplementary operations or in work that involves, in the main, mere attendance, for these, permanent exceptions are generally made. The exceptional circumstances include accidents and exceptional pressure of work, for which temporary exceptions are sufficient. The elasticity provided for dealing with cases of actual or threatened accidents is, it is true, of only secondary importance, and the same applies to the list of preparatory or supplementary operations, which cannot be unduly long since such work is unproductive. On the other hand, it is far from unimportant from the economic point of view if more or less extensive exceptions are permitted in the case of work which for technical reasons cannot be stopped at will or for employment of an intermittent character, or, more especially, for exceptional pressure of work.

Most of the exceptions permitted for the textile industry are contained in the detailed regulations which apply to the majority of industries. The operations in the textile industry which cannot be stopped at will and which sometimes require an extension of

hours of work are generally taken to be certain operations in the bleaching, dyeing and finishing branches. Work of an intermittent nature, for which hours of work are sometimes extended to as many as 12 in the day, includes the duties of watchmen, supervisors, time-keepers, office messengers, motor drivers, delivery men, warehousemen and stock-keepers. In practically all the regulations, hours of work may be extended to meet an exceptional pressure of work, and these extensions are by far the most important <sup>1</sup>

The regulations of some countries contain exceptions for other reasons, but these can doubtless be used to cover an exceptional rush of work <sup>2</sup>

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<sup>1</sup> A few typical examples of the various methods by which this matter is regulated may be given here. In Belgium, the general legislation provides that the daily hours of work may be extended by 2 hours for 3 months in the year, subject to an agreement between the parties to meet an exceptional rush of orders due to some unforeseen event. In France, the Decree applying the 40 hour week to the textile industry provides an allowance of 75 hours a year which may be used at the rate of 1 hour daily to meet exceptional pressure of work. In India, the general legislation permits hours of work to be extended for 2 months a year but does not lay down limits for the extension. The general legislation of the Netherlands also makes provision for meeting an exceptional rush of work by extending hours to 11 in the day and 62 in the week, there is no indication as to the number of days or weeks in the year to which this extension may apply, and the collective agreements in the industry merely refer to extensions of hours without specifying reasons or limits. In Switzerland, apart from the system of the extended normal week, the general legislation provides for an extension to meet exceptional pressure of work, hours may be extended by 2 in the day on not more than 80 days a year. In the United States, exceptional pressure of work is doubtless covered, in part at least, by the exceptions permitted for "emergency work". For work of this type the Code for the cotton industry permitted the 40-hour week to be extended to a 48-hour week for persons employed in dyeing, bleaching, drying and mercerising.

### *Overtime Payment*

Generally speaking, the regulations provide for an increased rate of pay for work performed outside the normal working week or outside the hours fixed for the beginning and end of the daily work. This increased rate applies more particularly to overtime for exceptional pressure of work, and it is only in rare cases that it applies to extensions permitted as permanent exceptions.

The overtime rates laid down by legislation, by collective agreements or by arbitration awards usually differ according to whether the overtime is by day, by night or on Sundays or public holidays. The minimum rate for overtime during the day is never less than time-and-a-quarter. It is sometimes higher in the United States; for instance, the increase under the Code was not less than 33 1/3 per cent, and in the hosiery industry time-and-a-half is paid. In the cotton industry in Italy, the increase is 30 per cent, and the same figure is fixed in Sweden by the collective agreement for the whole textile industry. The minimum rate is time-and-a-half in the province of Vorarlberg in Austria, and the same rate is fixed in Spain by the contracts of employment for the bleaching industry in Barcelona and by the legislation concerning the employment of women throughout the country as a whole.

The special rates of pay for night work—that is, between 8 or 10 p.m. and 5 or 6 a.m.—generally vary between time-and-a-half and double rates. For work on Sundays or public holidays, double rates are very often paid, but there are cases in which lower rates are prescribed, although never less than time-and-a-half.

### *Shifts*

Work in shifts may be of considerable importance in the textile industry as a means of increasing output capacity and reducing production costs. Although such measures necessarily tended to raise production costs, employers' organisations in several countries,

as soon as they were overtaken by the depression, tried to adjust output to effective demand by restricting the possibility of working in several shifts. Employers have often stressed the regulation of shift work internationally in connection with the problem of reducing hours of work in the textile industry.

In a number of countries, work in several shifts is subject to regulations restricting it in such a way as to involve, in some cases, a reduction in hours of work. In India, for instance, where the normal hours of work are 54, the three-shift system is practised, the hours of shift workers being 54, 48 and 36 in the week. In Italy, in some cases where the three-shift system is applied within the framework of the 40-hour week, hours of work have been fixed at 36 in the week. In Mexico, when three shifts work in succession the hours of work of the third shift are reduced from 48 to 40. When two shifts are worked in Spain, the hours of each shift are cut down from 48 to 45 or 42. In the United States, the Hosiery Code provided that when two shifts were worked the hours of each should be reduced to 36 in the week. The French Decree for the textile industry, on the other hand, permits the average weekly working hours to be increased to 42, but only in the case of work which must be carried on continuously for technical reasons day and night on week-days and Sundays.<sup>1</sup>

## II — REST PERIODS

Under rest periods the different breaks in the working week or working year introduced for whatever reason will be considered. These include the weekly rest, public holidays, paid annual holidays, maternity leave,\* and limitations on night work.



minimum duration of the weekly rest is 24 hours, and it is as long as 42 hours in the U S S R

Special systems, referred to above, are in force in Japan and the U S S R. In Japan, the Factory Act provides that 48 hours of rest (2 days and 2 nights) must be guaranteed to women and young persons every month. In cotton-spinning mills, 4 days of rest monthly are strictly observed. In the U S S R, the system of the 6-day week involves 60 days of rest annually instead of 52, which is the figure where a 7-day week is worked.

The regulations in the various countries generally provide that certain operations may be performed on the day of the weekly rest. These exceptions again may be permanent or temporary in character.

Temporary exceptions are generally permitted for work which must be undertaken immediately in cases of *force majeure* (actual or threatened accidents), for repair work that is indispensable for the normal working of the undertaking and necessary for the complete resumption of work, together with the supervision of such operations, for loading and unloading of trucks, boats, aeroplanes or lorries in order to ensure that such work is carried out within the necessary time-limits, for exceptional work necessitated by the public interest (in the event of mobilisation, war, or events affecting the national interest), for work required for stocktaking prescribed by law. Special remuneration at a higher rate is prescribed for these temporary exceptions.

Permanent exceptions are usually permitted for keeping watch on premises, for cleaning and maintenance work indispensable for the normal working of the undertaking or of some other undertaking and work necessary for the complete resumption of work in the undertaking, in so far as these operations cannot be performed on working days, for work connected with necessarily continuous processes.

## 2 — Public Holidays

The legislation of most countries recognises certain public holidays, but these legal holidays are not necessarily days on which work must be stopped. In order to obtain information on this point, it is necessary to study collective agreements, which generally indicate in most countries what are the public holidays that are observed in the textile industry.

The public holidays prescribed by the regulations play a more or less important part in the calculation of the annual number of hours available for work in the textile industry in each country.

It must be remembered that certain public holidays necessarily fall on Sunday or on the normal weekly rest day, as, for instance, Easter and Whitsun, whereas others necessarily occur during the week, as, for instance, Ascension Day and Good Friday. Other holidays may fall either on a week day or on Sunday, as in the case of the 1st of May or Christmas Day. The number of public holidays varies considerably not only from country to country but even within any one country. Some regulations reckon as public holidays those that coincide with the Sunday (e.g. in Estonia and Germany), whereas others do not refer to holidays that coincide with the weekly rest day. The number of holidays depends partly on religious and partly on secular custom. Religious custom varies considerably from country to country even when they are of the same religious persuasion. In many Catholic countries Good Friday is not a public holiday, whereas in Spain, for example it is. Similarly it will be found that certain secular or religious holidays fall on fixed days in certain countries and are movable feasts in others. In Australia and the United States some holidays are celebrated on Monday if their fixed day would make them coincide with a Sunday. In some countries, more especially in the East, where there may be several religions with large numbers of adherents, the situation is very obscure, because different public holidays are recognised for members of the different religions.

The necessity for closing an enterprise on public holidays is not equally strictly observed in every country. In Germany, for example, it is absolutely compulsory, in France or in Belgium, on the other hand, the obligation is much less strict, sometimes the legislation permits time lost on account of public holidays to be made up subsequently. It is thus very difficult to make comparisons of any value. The table on page 271 gives a general picture of the public holidays recognised by law or by custom, in so far as any attempt of this kind can claim to be more than a mere approximation.

Both the general regulations and the special regulations for the textile industry usually make provision for exceptions whereby in cases of necessity work can continue on public holidays. These exceptions are generally the same as those mentioned in connection with the weekly rest.

### 3. — *Annual Holidays with Pay*

Any regulations that exist concerning holidays with pay reduce the number of hours of work available for industry unless the time

Country	Number of public holidays			
	In all	Coinciding with		
		Sunday	Week-day	Week-day or Sunday
Australia	9	—	2	7
Austria	13	—	4	9
Belgium	9 (a)	—	3	6
Brazil	10	—	—	10
Canada	7	—	3	4
China	7	—	—	7
Czechoslovakia	9	—	3	6
Estonia	18	2	6	10
France	10 (a)	0	3	7
Germany	11	2	5	4
Great Britain and Northern Ireland (b)	—	—	—	—
Hungary	—	—	—	2
Italy	9	—	—	9
Japan	—	—	—	5
Mexico	12	—	2	10
Netherlands	6	—	3	3
New Zealand	6	—	2	4
Poland	14	—	4	10
Rumania	11	1	2	8
Spain (c)	6	—	—	6
Sweden	10 ½	—	4	6 ½
Switzerland	8	—	4	4
United States (d)	—	—	—	—
U S S R	8 (e)	2	6 (f)	—
Yugoslavia (g)	2	—	—	2

Hungary, Italy, Mexico, the Netherlands, Poland, Rumania, Spain, Sweden, Switzerland, and the U S S R This list calls for certain reservations on the one hand it is not certain that it is absolutely complete, and on the other hand the same reservation must be made in the case of China as was made with regard to hours of work and the weekly rest

The duration of the annual holiday with pay, which varies within quite wide limits, is shown in the following summary table

Country	Nature of the regulations	Duration of the annual holiday (working days)
Austria	General legislation	1 to 5 weeks
Belgium	General legislation	At least 6 days
Brazil	General legislation	7 to 15 days
China	General legislation	7 to 30 days, according to length of service
Czechoslovakia	General legislation	6 to 8 days, according to length of service
Estonia	General legislation	At least 7 days
France	General legislation	At least 12 days
Germany	Collective regulations	6 to 12 days, according to district and length of service
Hungary	Collective agreements	
	(a) Foremen	6 days after 2 years (with reduced wage)
	(b) Assistant foremen	6 days after 5 years (with reduced wage)
Italy	General legislation and collective agreements	At least 6 days
Mexico	General legislation	4 to 6 days
	National collective agreement	6 days
Netherlands	Collective agreement	3 to 6 days according to the individual contract
Poland	General legislation	6 to 12 days according to length of service
Rumania	General legislation	7 to 30 days according to length of service
Spain	General legislation and standards of employment	At least 7 days (10 days in the province of Catalonia)

largest proportion of married women. This explains the social importance of the leave granted to women workers before childbirth and of the other measures taken to protect the health and wellbeing of these women and their children. These measures are also a far from unimportant factor in the economic condition of the textile industry, for their application obviously involves a certain reduction in the actual hours worked by the women workers of these undertakings. Consequently, the differences that exist from country to country in the legal obligations of employers with regard to maternity protection must be taken into account.

The measures taken to protect women workers in the case of maternity are of various kinds. One is the granting of leave for a certain period before and after childbirth. From the social point of view, the great value of such leave before as well as after childbirth will be obvious in an industry where practically all the operations require the worker to remain standing and to execute various stretching and bending movements that are extremely painful for a woman in an advanced stage of pregnancy. The necessity for medical supervision of women workers in the textile industry during pregnancy and for a considerable period of leave before and after childbirth was clearly brought out in the enquiry into the employment of pregnant women in German industry carried out by the Factory Inspectorate in 1926<sup>1</sup> and by the enquiries undertaken by the trade union of German textile workers at approximately the same date<sup>2</sup>.

The period of absence permitted on account of pregnancy and childbirth varies considerably from country to country, but there is a growing tendency to adopt the standards laid down by the International Convention adopted in Washington in 1919, which applies, *inter alia*, to textile workers. According to this Convention, a woman worker is entitled to be absent from her work for six weeks before and six weeks after childbirth, with a prolongation for a period to be fixed by the authorities of each country if she is incapable of work for a longer period as a result of her pregnancy or childbirth.

With certain variations as to its compulsory or optional character and as to whether it is normally or only exceptionally granted

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<sup>1</sup> REICHSARBEITSMINISTERIUM *Sonderfragen des Arbeitsschutzes und Beobachtungen aus Unfallverhütung und Gewerbehygiene im Jahre 1926*, pp 11-26.

<sup>2</sup> DEUTSCHER TEXTILARBEITER-VERBAND *Erwerbsarbeit, Schwangerschaft, Frauenleiden. Die Aktion des Deutschen Textilarbeiterverbandes betr. Besserung des Loses erwerbstätiger schwangerer Frauen*. Berlin (Textil-Praxis), 1925, 118 pp., and Berlin (Textil-Praxis), 1926, 46 pp. (Neue Folge, Heft II).

(in two or three countries a certificate stating that absence is necessary is required for a part of the period of six weeks), maternity leave in accordance with the standards laid down by the International Convention is granted to women workers in the textile industry by the legislation of the following countries (among those covered by the present Study) Brazil, France, Germany, Hungary, Italy, Poland, Rumania, Spain and Sweden. The laws of the U S S R and Yugoslavia prescribe longer periods of absence—56 days before and 56 days after, and two months before and two months after respectively. In three of the provinces of India (Bombay, Central Provinces and Madras) and in China, Mexico and Switzerland, the period of absence permitted by the legislation is shorter than that fixed in the Convention.

In all these countries this period of absence constitutes a suspension of the contract of employment but not its termination, the dismissal of the woman worker is prohibited during the whole period of her legal absence, and her post must be kept open for her provided she returns within the time-limits prescribed in the legislation. This legal obligation naturally creates certain difficulties for the employer, who has to do without the services of an experienced woman worker, but in the great majority of cases it does not involve any pecuniary charge, because the Washington Convention stipulates that the benefits shall be provided either out of public funds or by means of a system of insurance. In general, it is compulsory social insurance funds, or in some countries special relief funds, that have to pay the maternity benefits. In four of the countries mentioned, however—Brazil, China, India and Mexico—the employer is responsible for paying a woman worker her wage or part of her wage during her absence.

The other countries covered by the present Study have legislation which merely prohibits the employment of women workers during a given period before and after childbirth (or usually after childbirth only). When such is the case the woman in question may be permanently replaced by another worker. No expense is thus caused to the employers, but these regulations do not grant positive protection to the woman worker but merely free her from a certain amount of risk.

The legislative provisions for the protection of women workers during the period when they are nursing a child are of undoubted if less fundamental social interest, but they are perhaps more important from the point of view of the output of women workers. The provision that is most frequently included in national legislation

on this subject is taken from the International Convention of Washington, which states that a woman worker who nurses her child is entitled to two special breaks in the course of her day's work for this purpose. In accordance with the Convention these breaks, which count as part of the normal working hours, are generally two in number and half an hour each in duration. This is the case in Austria, Brazil, Germany, Hungary, Italy, Mexico, Poland, Rumania, Spain, the U S S R and Yugoslavia. In some laws it is expressly stated that no deduction may be made from wages on account of those interruptions in work, and this seems to be implicitly understood in the other countries. In the countries mentioned, all the women workers who enjoy the right work an hour less per day than their normal hours. In France, the two breaks, which are normally half an hour each, are reduced to twenty minutes if a special room is provided in the undertaking. In Italy, the two breaks are of half an hour each if the woman has to leave the undertaking in order to nurse her child.

#### 5 — *Night Work*

There may be two purposes in restricting night work in textile establishments: either to reduce the hours during which the undertaking is working and therefore prevent a third shift, or to minimise fatigue and enable the worker to enjoy normal family life. In the first case, the restriction will apply indiscriminately to workers of all ages and both sexes, whereas in the second case it will apply mainly to women and young persons. There are very few regulations prohibiting the employment of adult male workers at night; they exist only in the Netherlands and Poland. In Czechoslovakia and in Switzerland, however, considerable restrictions are imposed (in Switzerland, for example, night work is possible only with the consent of the worker and in strictly specified cases). In India and in Mexico, various formalities must be complied with before night work is permissible.

On the other hand, the prohibition of the employment of women and young persons during the night is usual in practically all the countries under consideration. In China, the principle is laid down in the legislation but has not yet been applied with regard to the employment of women. In the United States, the employment of women during the night in industrial undertakings is prohibited in only fourteen States and in Porto Rico; in particular, it is not legally prohibited in several of the Southern States in which the textile industry is very important. In recent years, however, the

employment of women during the night in the textile industry has been considerably reduced by agreements between employers. The restriction of work to two 8-hour shifts, which was introduced by the Industrial Codes and has been retained voluntarily by most undertakings in the industry has naturally led to the abolition of work during the night period in States where this was not legally prohibited.

The prohibition of the employment of women and young persons at night is extremely important in the textile industry because of the large proportion of women employed. In practice this partial prohibition of night work really means the complete prohibition of night work for all workers employed in the undertakings in question. In Japan, for example, the application of the Factory Act, which prohibited the employment of women and young persons at night, immediately led to a reduction in the number of hours worked by textile factories. The influence of such a measure may be appreciated when it is remembered that in 1928, immediately before the Factory Act came into force, 167,000 women and young persons were working at night in the Japanese textile industry out of a total of 785,000 men and women workers employed in those factories. The proportion was even higher for the cotton branch of the industry, which employed 230,000 men and women in all, including 132,000 women and young persons working at night.

The period defined as night includes in every case the hours from 10 p.m. to 5 a.m.,<sup>1</sup> or, in the case of women, from 11 p.m. to 6 a.m., in accordance with the revised International Convention of 1934. The period of night is sometimes much longer. In Great Britain, for instance, where the factories and workshops legislation even lays down special limits for the textile industries, the period during which employment is prohibited extends from 6 p.m. to 6 a.m. or from 7 p.m. to 7 a.m., whereas in establishments other than textile factories the night period may be from 9 p.m. to 8 a.m.

A distinction must be made between cases in which work is organised in a single shift and those in which two shifts are worked. In Great Britain, as in several other countries in which the employment of women and young persons is considerably restricted by law in the case of work in a single shift (Germany, the Netherlands, some States of the United States, etc.), the period during which their employment is permitted or can be permitted by the

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<sup>1</sup> The period laid down in the International Conventions concerning the employment of women and young persons during the night



proper authorities is extended considerably when the work is organised in two shifts. The period is then generally from 5 a m to 10 p m (6 a m to 10 p m in Great Britain) and in some cases even longer (from 6 a m to midnight in one of the States of the United States)

As to exceptions other than those connected with work in two shifts, a certain number are prescribed in practically every system of legislation for the actual night period. These may be permanent exceptions, such as those granted for work which by its nature must be carried on continuously day and night. In the textile industry those exceptions apply to a very small number of women workers, since such exceptions are restricted by most of the national laws, in accordance with the International Conventions of 1906, 1919 and 1934, to cases in which the work has to do with raw materials or materials in course of treatment which are subject to rapid deterioration, when such night work is necessary to preserve these materials from certain loss. In the case of young persons, permanent exceptions for continuous operations are even less common, for the International Convention of 1919 concerning the employment of young persons during the night does not permit such exceptions for the textile industry.

The exceptions in question may also be temporary, such as those permitted for seasonal work, in the event of accidents, or in certain other exceptional and temporary circumstances. These exceptions, whether permanent or temporary, are always subject to certain conditions such as the permission of the competent authorities, the granting of a compensatory rest period, the introduction of breaks, etc. If the prohibition of night work applies to young persons under the age of 18 years, exceptions cannot as a rule be granted except for young persons between the ages of 16 and 18. When the upper limit is fixed at 16 years, exceptions are usually permitted for young persons between the ages of 14 and 16 years. In some cases no exception to the prohibition of night work is permitted for women who have reached a certain stage of pregnancy.

### III — NATIONAL DIFFERENCES IN REGULATIONS ON HOURS

be pointed out that legislation is very widely used as a method of regulating conditions in the textile industry. Also, even when the textile industry as a whole is governed by a single system of legislation, it does not mean that identical conditions of employment are laid down for every branch, for some of them, such as the bleaching, dyeing and printing branches of the industry, special provisions are generally laid down to make the regulations more elastic.

With the exception of some Asiatic countries, the regulations generally apply to all workers in the industry. It should further be remembered that the Japanese regulations concerning women and young persons have a decisive influence on the actual hours worked by other workers in textile factories.

In so far as the limit set to the weekly hours of work by the various regulations is concerned, the preceding survey shows a certain apparent uniformity in the case of those States that have adopted the 48-hour week as the normal. In reality one finds that among the important textile producing countries the regulations prescribe a wide range of different hours of work, from the 40-hour week in France, Italy, New Zealand and the United States—in the U S S R a 7-hour day—to a week of 54 hours or more in certain countries. When one remembers the economic importance of the countries situated at those extremes, it is difficult to speak of uniformity in the normal hours of work. Moreover, many countries that have accepted the principle of the 48-hour week still permit prolonged if not permanent exceptions from this principle so that the 48-hour week can only partially be considered as the general rule in those countries.

Another cause of divergence is the possibility which exists for some countries to organise work in a number of shifts. As a rule the legislation prohibiting the employment of women and young persons during the night is sufficiently restrictive to make work in more than two shifts impossible except in the case of adult male workers. But there are some countries which enjoy the dual economic advantage of long hours of work and the systematic organisation of work in two or three shifts.

The diversity of the different systems in force is shown equally clearly by an examination of the possibility under these regulations of distributing hours of work or of obtaining permits for permanent or temporary extensions of hours. One finds differences in terminology, differences in the conditions for obtaining permits to use special systems of hours and differences in the nature and extent

of these systems. Also, the other factors indicated above—weekly rest, public holidays, annual holidays with pay, maternity leave and night work—vary considerably from country to country. The divergences are perhaps less marked in the case of the weekly rest and night work than in the case of public holidays and annual holidays with pay, nevertheless, they exist.

The general conclusion can therefore be drawn from this survey that there is a great diversity in the schemes established by the regulations analysed above which seriously affect the maximum limits of working hours in the textile industry in different countries.

#### IV — ACTUAL HOURS WORKED

The number of hours actually worked is the result of several factors, of which some result from changes in normal hours as fixed by law or collective agreement, others are the result of short time or irregularity of employment, and still others are due to general economic and social conditions. No attempt is made here to separate the effects of these factors and the existing statistics show the actual position as regards hours worked in the different countries. The data are presented in table 1, which shows either actual hours worked or, where this is not available, the proportion of workers working certain ranges of hours (e.g. under 48, 48 and above 48 hours per week).

In the first place, this table shows that the tendency from 1929 to 1934 was uniformly towards a decrease in the number of hours worked in the textile industry as a whole. During 1935-1936, in several countries, namely in Germany (especially in silk), in the United States, in France, and in Japan (cotton spinning), the tendency was reversed and the number of hours worked increased slightly. This tendency is not peculiar to the textile industry and is in fact noticed in other industries.

The countries for which data are available as shown in table 1 on pages 280-284, may be arranged in three groups according to hours worked in 1935-1936. In the first group are the countries of the Far East—China and Japan—and India, with the longest working day ( $8\frac{1}{2}$  to  $11\frac{1}{2}$  hours),<sup>1</sup> the second group includes Austria, Sweden

**TABLE 1 — ACTUAL HOURS OF WORK IN THE TEXTILE INDUSTRY  
AND IN INDUSTRY IN GENERAL**

Country and branch of industry	Sept 1929	Sept 1933	Sept 1935	Sept 1936
	<i>Hours worked per day</i>			
<i>China (Shanghai)</i>	<sup>1</sup>		(a)	
Cotton spinning, men	11 75	11 50	11 50	—
women	11 90	11 50	11 50	—
Weaving, men	11 10	11 34	11 30	—
women	11 60	11 36	11 34	—
Silk reeling, men	12 00	*	*	—
women	11 00	10 87	10 91	—
Weaving, men	10 50	10 60	10 61	—
women	10 40	10 55	10 39	—
Wool weaving, men	*	11 23	11 11	—
women	*	11 24	11 05	—
Bleaching and dyeing, men	7 80	*	*	—
Industry in general, men	*	10 11	10 00	—
women	*	10 61	10 63	—
<i>Germany</i>				
Textiles	7 61	7 16	6 71	7 12
Industry in general	7 76	7 18	7 44	7 62
<i>Japan (Bank of Japan series)</i>				
Cotton spinning	*	8 78	8 87	8 90
Silk spinning	*	10 02	10 05	10 02
Doubling (in general)	*	9 97	9 97	9 98
Weaving (in general)	*	9 90	9 92	9 92
Dyeing and finishing	*	10 65	10 65	10 57
Textiles <sup>2</sup>	*	9 83	9 85	9 85
Industry in general	*	9 77	9 85	9 87
<i>Japan (Imperial Cabinet series)</i>				(a)
Textiles	9 83	9 58	9 65	9 67
Industry in general	9 28	9 25	9 28	9 27
<i>U S S R <sup>3</sup></i>	(c)		(d)	
Cotton	7 8	*	7 0	—
Wool	7 9	*	7 0	—
Silk	8 0	*	7 0	—
Flax	8 0	*	7 0	—
Hemp and jute	8 0	*	7 0	—
Big industry in general	7 8	*	6 98	—
	<i>Hours worked per week</i>			
<i>Austria (Vienna and Lower Austria)</i>		(g)	(h)	
Cotton	*	48 80	48 80	—
Wool	*	(48 68)*	45 38	—
Silk	*	*	46 70	—
Hemp and jute	*	*	45 27	—

**TABLE 1 — ACTUAL HOURS OF WORK IN THE TEXTILE INDUSTRY  
AND IN INDUSTRY IN GENERAL (*continued*)**

Country and branch of industry	Sept 1929	Sept 1933	Sept 1935	Sept 1936
<i>Hours worked per week</i>				
<i>Germany</i>		<sup>1</sup>	(e)	(f)
Cotton	*	(44 95)	41 6	41 3
Worsted	*	(45 35)	40 5	38 6
Wool (fabrics)	*	(40 50)	40 1	40 0
Linen	*	(41 66)	43 5	38 1
Silk	*	(43 68)	39 2	44 0
Textiles <sup>6</sup>	*	(43 16)	40 9	40 9
<i>Poland</i>				
Textiles	*	42 2	41 5	40 9
Industry in general	45 1	42 2	42 9	43 0
<i>Sweden</i>		(g)	(g)	
Textiles	*	47 7	47 1	—
Mines, industry, transport and commerce	*	45 2	47 0	—
<i>United Kingdom</i>			(o)	
Cotton	*	*	47 3	*
Woollen and worsted	*	*	49 2	*
Textiles	*	*	47 7	*
<i>United States (Bureau of Labor Statistics series)</i>				
Cotton goods	*	36 0	35 1	37 0
Woollen and worsted goods	*	37 3	36 7	33 1
Silk and rayon goods	*	34 1	35 5	36 2
Dyeing and finishing	*	35 2	36 3	39 8
Textiles <sup>6</sup>	*	*	35 9	36 5
Industry in general	*	36 1	37 4	38 7
<i>United States (National Industrial Conference Board series)</i>				
Cotton (North)	48 2	36 8	36 7	39 2
Wool	47 6	36 4	37 5	36 4
Silk	49 4	34 5	32 5	36 4
Industry in general	48 8	36 3	37 7	40 6
<i>Hours worked per month</i>				
<i>Italy</i>			(j)	
Cotton	*	179	130	—
Wool	*	190	156	—
Silk spinning and twisting	*	172	131	—
Silk weaving	*	168	128	—
Flax, hemp and jute	*	187	135	—
Artificial textile fibres	*	180	166	—
Textiles and clothing <sup>7</sup>	178	181	138	—
Mines and industry in general	184	183	156	—

**TABLE 1 — ACTUAL HOURS OF WORK IN THE TEXTILE INDUSTRY  
AND IN INDUSTRY IN GENERAL (*continued*)**

Country and branch of industry		Sept 1929	Sept 1933	Sept 1935	Sept 1936
		<i>Percentage of workers working weekly</i>			
		A = less than 48 hours B = 48 hours C = more than 48 hours			
<i>Austria</i>		(k)	(k)	(l)	(l)
Textiles and clothing	A	9 0	35 3	12 1	7 6
	B	84 3	63 2	81 3	85 7
	C	6 7	1 5	6 6	6 7
Mines and industry in general	A	3 1	25 4	11 2	15 6
	B	89 9	70 8	80 9	78 0
	C	7 0	3 8	7 9	6 4
<i>France</i>		(m)			
Textiles	A	2 6	34 0	58 9	43 3
	B + C	97 4	66 0	41 1	56 7
Mines, industry, transport, commerce	A	3 4	37 1	41 9	24 2
	B + C	96 6	62 9	58 1	75 8
<i>Italy</i>				(j)	
Cotton	A	9 1	23 4	99 1	—
	B	83 6	74 6		—
	C	7 3	2 0		—
Wool	A	13 9	19 5	96 1	—
	B	71 6	66 2		—
	C	14 5	14 3		—
Silk spinning	A	1 0	9 2	99 8	—
	B	78 0	89 9		—
	C	21 0	0 9		—
Silk weaving	A	8 4	26 8	98 3	—
	B	86 8	69 9		—
	C	4 8	3 3		—
Artificial silk	A	6 5	32 3	97 2	—
	B	84 8	64 9		—
	C	8 7	2 8		—
Flax and hemp	A	36 7	44 7	97 4	—
	B	50 6	50 4		—
	C	12 7	4 9		—
Jute	A	3 3	19 3	97 7	—
	B	71 1	63 4		—
	C	25 6	17 3		—
Industry in general	A	9 0	19 1	89 3	—
	B	75 2	72 2		—
	C	15 8	8 7		—

TABLE 1 — ACTUAL HOURS OF WORK IN THE TEXTILE INDUSTRY  
AND IN INDUSTRY IN GENERAL (*concluded*)

Country and branch of industry		Sept 1929	Sept 1933	Sept 1935	Sept 1936
		<i>Percentage of workers working weekly</i> A = less than 48 hours B = 48 hours C = more than 48 hours			
<i>Switzerland</i> Cotton	A	*	(i) 22 5	(n) 27 4	*
	B	*	48 9	59 8	*
	C	*	28 6	12 8	*
Silk and artificial silk	A	*	22 1	29 8	*
	B	*	73 1	65 7	*
	C	*	4 8	4 5	*
Wool	A	*	4 4	11 7	*
	B	*	76 1	67 2	*
	C	*	19 5	21 1	*
Linen	A	*	21 7	10 8	*
	B	*	76 3	89 2	*
	C	*	0	0	"
Embroidery	A	*	4 9	18 9	*
	B	*	19 2	27 2	*
	C	*	75 9	53 9	*
Other textile branches	A	*	27 7	20 9	*
	B	*	72 3	77 5	*
	C	*	0	1 6	*
Industry in general	A	*	25 5	27 0	*
	B	*	62 4	64 1	*
	C	*	12 1	8 9	*

For France, the latest available figures (1936) show an average duration of about 45 hours per week, but since the coming into force in the beginning of January 1937 of the 40 hours decree, this country too enters into this last group

As indicated above, these shorter hours may be due to legislative and voluntary agreements to reduce normal working hours, or they may be due to the depression of the industry leading to short time while normal or legal hours remain unchanged. In 1929 the available data indicate that longer hours were worked in Japan and in certain branches in Italy, and somewhat shorter hours in Germany. The greatest reduction appears in the United States, where average hours worked were estimated at about 48 in 1929 and varied from 36 to 39 in September 1936.

If comparison is made with other industries, hours in the textile industry in recent years are higher in China, Japan, and Austria, shorter in Germany and Poland, and approximately the same in the United States and in France.

## V — SUMMARY

The differences in the regulation of normal hours of work and of hours actually worked in the textile industry surveyed in the preceding sections raise a number of important questions. From a social point of view, it may be asked whether and to what extent the prevailing work-day and work-week in the different countries approach what may be regarded as the optimum from the point of view of the health and wellbeing of the worker, and to what extent the different regulations concerning holidays with pay, maternity leave, etc., provide adequate protection to the health of the workers in the textile industry, allowing for differences in local conditions.

From a practical point of view, the important question is what effect a reduction in hours of work would have upon labour productivity, output and costs of production, and therefore on competitive ability, on the one hand, and upon wage rates, employment and earnings of the workers on the other. An answer to the various points of this question would involve an analysis of the possible ways in which either the working day or the working week might be reduced, the extent to which such reduction may be made, the ways in which machine-hours and man-hours might be varied by the arrangement of different working shifts, the degree to which hourly



and piece wage rates would be adjusted, in accordance with the reduction in hours, the various methods by which management would be enabled to effect improvements in the use of plant, equipment and working staff, the degree to which the psychological effects of a further reduction in hours would stimulate higher labour productivity, the extent to which the effects of a reduction in hours upon total unit costs of production would be offset by influences independent of the duration of the working period, such as savings in overhead costs, the movement of prices of raw materials, etc , and how variations in labour productivity due to changes in working hours would operate under conditions of improving or stationary business. Some light on the relation of a reduction in hours of work to labour costs and prices is thrown by the studies made in the United States and summarised in Chapter XIII

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## CHAPTER XII

### EMPLOYMENT AND UNEMPLOYMENT

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In discussing the wages and working hours of textile workers, reference was made in the preceding chapters to the irregularity of employment and to the extent of unemployment in the industry. Obviously, given rates of pay, the number of hours of work during the year which the industry can give to its workers determines their annual earnings. But irregularity of employment and unemployment affect the standard of living of the worker and of his family in many other ways which have become familiar by now as a result of experience and special studies. It is thus important, for a picture of labour conditions in the textile industry, to survey briefly the extent to which the industry has been subject to fluctuations in employment and unemployment, and to compare it with other industries in this respect.

The available statistics, imperfect as they are, clearly show that there has been considerable unemployment in the textile industry in recent years. In Germany, there were nearly 228,000 workers out of employment in the textile industry in 1932. In Austria, the number was 19,550 in the same year. In Italy, it was 145,700 and in Czechoslovakia 87,000. In Poland, the figure reached its maximum of 27,900 in 1932. In 1931, in Great Britain, 38.4 per cent of the workers in the cotton industry were unemployed, whereas the percentage of unemployed persons in industry as a whole at the same date was 21.3. In Belgium, unemployment in the textile industry reached its maximum in 1932, with a percentage of 19.1 for total unemployment and 28.9 for partial unemployment. In the Netherlands, in the same year, unemployment was 33.8 per cent, and it rose to 39.1 per cent in August 1936. In Canada, the cotton yarn and cloth industries showed 30 per cent unemployment in 1932. No unemployment statistics are available for other overseas countries, but between 1929 and 1932 employment is known to have fallen by almost 27 per cent in the United

States textile industry and by between 20 and 30 per cent in the different branches of the textile industry in Japan

In considering the causes of this situation, which seems to have affected to some extent most of the textile manufacturing countries, it may be most expedient to examine the data on unemployment from the points of view of three factors cyclical, technological and structural. It is obviously impossible to determine the exact importance of each of these factors. Nor is it possible to separate cyclical influences from the influence of policies of economic self-sufficiency, monetary factors, geographical displacements, technical developments and changes in habits of consumption which occurred at the same time. Apart from these difficulties, there is the further fact that the influence of the business cycle was so overwhelming in recent years that it more or less obscured the consequences of all the others. All that can therefore be attempted in this chapter is to indicate the main characteristics of the situation during recent years and to show the cyclical, structural and technological factors as they appear to have operated during the period.

## I — THE CYCLICAL FACTOR

Table 1 gives, in the form of index numbers based as far as possible on the year 1927, the information available concerning unemployment in the textile industry and in industry as a whole, for all the countries which publish such figures.<sup>1</sup>

No figures are available for some of the more important textile producing countries, such as the United States, Japan and France. Such as they are, however, the figures given show that the trend of unemployment in the textile industry and the trend in industry in general follow a parallel course. In practically every case, the index numbers rise and fall at the same time, and the maximum was generally reached in the same year. It is difficult to avoid the conclusion that this phenomenon must be due to the action of one single cause, the economic depression, acting at the same time on the two sets of figures. It may, therefore, be concluded that in most countries the most important cause of unemployment in the textile industry, as in industry in general, during the last ten years has been the cyclical factor.

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<sup>1</sup> For the figures used as a basis for these index numbers, see Volume II and the INTERNATIONAL LABOUR OFFICE *Year Book of Labour Statistics*, 1935-36.

**TABLE 1 — COMPARISON OF FLUCTUATIONS IN UNEMPLOYMENT IN THE TEXTILE INDUSTRY AND IN INDUSTRY IN GENERAL IN CERTAIN COUNTRIES, 1927 TO 1935**

Countries and industries	1927	1928	1929	1930	1931	1932	1933	1934	1935
<i>Austria</i>									
Textile	100	105	158	246	277	326	345	276	268
All industries	100	91	96	121	150	189	203	185	174
<i>Belgium</i>									
Textile (wholly unemployed)	100	88	100	338	1,150	2,388	1,989	2,213	1,750
All industries (wholly unemployed)	100	50	72	200	605	1,056	944	1,056	994
<i>Canada</i>									
Fibres, textile and textile products	100	84	141	185	259	323	188	169	173
Textile and carpet workers	100	84	64	924	684	968	824	932	712
All industries	100	92	116	227	343	449	455	371	314
<i>Czechoslovakia</i>									
Textile	100	126	129	367	1,001	1,804	2,060	1,790	1,704
All industries	100	73	79	199	551	1,048	1,396	1,281	1,298
<i>Denmark</i>									
Textile	100	86	51	56	51	50	35	39	44
All industries	100	32	69	61	80	141	128	98	88
<i>Germany</i>									
Textile	—	—	—	100	133	135	114	56	46
All industries	—	—	—	100	147	182	156	88	70
<i>Great Britain and Northern Ireland</i>									
Cotton	100	133	147	412	427	319	269	252	232
Wool	100	132	156	270	318	234	160	180	146
Silk and artificial silk									
Weaving	100	105	147	353	422	276	230	188	150
Spinning	100	111	107	165	397	319	193	143	100
All industries	100	111	107	165	220	228	205	173	160
<i>Italy</i>									
Textile and clothing	100	94	96	160	237	345	263	217	*
All industries	100	117	108	153	264	361	348	346	*
<i>Netherlands</i>									
Textile	100	89	114	410	811	1,207	1,182	1,254	1,382
All industries	100	75	78	107	199	324	341	352	410
<i>Poland</i>									
Textile	100	68	98	144	151	121	89	100	114
All industries	100	77	79	138	183	156	152	209	233
<i>Sweden</i>									
Textile	100	81	106	113	116	203	244	153	194
All industries	100	89	89	102	143	190	198	158	134
<i>Switzerland</i>									
Textile (wholly unemployed)	100	92	76	98	130	228	273	220	270
All industries	100	78	67	126	210	344	400	348	444

It should be noted that the figures given do not permit of any international comparisons. The mere fact that the index numbers used are based sometimes on percentages and sometimes on absolute figures in itself restricts the possibilities of comparison. But that is not the only difficulty. It must be remembered that, as these figures are index numbers, the extent to which they fluctuate by no means represents the absolute level of unemployment in each of the countries considered. In Canada, for example, in 1927 there was a considerable volume of unemployment in the cotton yarn and cloth industry (9.3 per cent), whereas the percentage was comparatively slight among textile and carpet workers (2.5), although the increase in unemployment was greater in the second of these industries than in the first, as is shown by the index numbers in the table, the maximum level of unemployment was higher in the former than in the latter (30 per cent as against 24.2). In Denmark, where the index fell more or less steadily throughout the whole period, unemployment in the textile industry was particularly high in 1927 (21.4 per cent). In Germany, again, the fact that the index moved gradually can be attributed to the fact that the series of figures used began in 1930, when the depression was already widespread, at that date, there were more than 3,000,000 unemployed workers in Germany, of whom 1,37,700 belonged to the textile industry. In Italy and in Poland also, there was quite a large volume of unemployment in the textile industry in 1927 (42,294 in Italy and 17,885 in Poland), so that the movement of the index figures is not particularly marked. In Belgium, Czechoslovakia and the Netherlands, on the other hand, the very extensive fluctuations in the index figures can be largely explained by the fact that unemployment was relatively slight in the basic year. In 1927, the percentage of wholly unemployed workers in the textile industry in Belgium was 0.8, which means that there was practically no unemployment at all.

It should further be noted that the index numbers in table 1 do not give a complete picture of the effects of the depression, as reflected in unemployment, in the textile industry. In every case it would be desirable to study the development of short time as well as that of total unemployment. There are, unfortunately, very few data available on this subject. Those published regularly by Belgium and Switzerland, which are reproduced in table 2, suggest that, during the early years of the depression in particular, the textile industry was especially liable to this form of unemployment and that, at any time, partial unemployment is more wide-

spread in the textile industry than in industry as a whole. During the recent depression, short time was considered a method of avoiding complete unemployment, and Governments encouraged employers to keep the largest possible number of workers in employment in this way. That is an additional reason for taking account of short time when studying the extent of the irregularity of employment to which textile workers are exposed.

TABLE 2 — PERCENTAGE OF WORKERS WHOLLY OR PARTIALLY UNEMPLOYED IN THE TEXTILE INDUSTRY AND PERCENTAGE OF WORKERS PARTIALLY UNEMPLOYED IN INDUSTRY IN GENERAL IN BELGIUM AND SWITZERLAND FROM 1927 TO 1936

Year	Belgium			Switzerland		
	Textile industry		All industries	Textile industry		All industries
	Wholly unemployed	Partially unemployed	Partially unemployed	Wholly unemployed	Partially unemployed	Partially unemployed
1927	0.8	5.4	3.9	4.0	5.2	2.0
1928	0.7	7.3	3.5	3.7	2.5	1.1
1929	0.8	5.8	3.0	3.1	5.0	1.7
1930	2.7	16.0	7.9	3.9	12.2	7.2
1931	9.2	26.1	16.9	5.2	16.4	12.1
1932	19.1	28.9	20.7	9.1	16.6	12.2
1933	15.9	24.7	17.2	10.9	11.6	8.5
1934	17.7	26.6	17.2	8.8	10.4	6.1
1935	14.0	18.3	12.8	10.8	12.9	5.9
1936	9.4(a)	17.4(a)	9.8	8.6(b)	10.7	—

(a) August  
(b) September

In order to determine exactly the seriousness of partial unemployment, it would be necessary to know not only the percentage of workers working short time but also the extent of the reduction in their hours of work. The enquiries made into this question in Great Britain show that, in the cotton industry, 35 per cent of the workers covered were unemployed for part of the week ending 26 November 1936 and that the average number of hours lost by each of these workers was 11. In addition, 33 per cent of the workers were temporarily stopped, that is to say had expectations of returning to their employment within 6 weeks. In the wool industry, the percentage of workers on short time was 9.5 and the number of

hours lost was 7 per head, the percentage temporarily stopped in the woollen and worsted industry as a whole was 31<sup>1</sup>

In France, a special enquiry into this subject<sup>2</sup> showed that full-time unemployment was less marked in the textile industry than in industry as a whole. The number of persons employed in the textile industry was 17 per cent of the total industrial population, but the number of those unemployed in the textile industry in December 1935 was only 8 per cent of the total number of applicants for employment. On the other hand, partial unemployment was very extensive. The percentage of workers working less than 48 hours a week rose from 7.3 at the end of 1930 to 68.4 at the end of 1931. After falling to 40.9 at the end of 1932 and 33.4 at the end of 1933, it rose as high as 71.1 and fell again to 53.6 per cent at the end of 1935. The maximum percentage was 78.4 in February 1932, the figure for industry as a whole in the same month being only 56.3 per cent.

Calculated in terms of full-time unemployment, on the basis of the hours actually worked, partial unemployment in the textile industry in France moved from 1.1 per cent in December 1930 to 14.9 per cent in December 1931, 7.4 in December 1932, 5.4 in 1933, 16.2 in December 1934 and 11.2 in 1935. The maximum was 20.1 per cent in 1932.

It would, therefore, seem that the lower proportion of wholly unemployed persons in the French textile industry, as compared with industry in general, can be attributed in large measure to short-time work, which was recommended both by the authorities and by the workers' organisations as a means of avoiding the actual dismissal of workers.

The index numbers given in table 1 call for one other remark. Unemployment in the textile industry in practically every country is shown by means of a single index. The only important country in which it is possible to follow the development of unemployment separately for the various branches of the textile industry is Great Britain, for which there are separate index figures for cotton, wool, silk, artificial silk, etc. The index numbers in table 1 show that in each of those branches in the United Kingdom the increase in unemployment during the depression was considerably more extensive than in industry in general. In 1931 the unemployment

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<sup>1</sup> *Ministry of Labour Gazette*, December 1936, p. 454.

<sup>2</sup> *CONSEIL NATIONAL ÉCONOMIQUE. Le chômage dans les industries textiles. Annexe au Journal Officiel de la République Française*, 5 June 1936.

index was 40 per cent higher for the textile industry and nearly 100 per cent higher for the cotton, silk and artificial silk branches than it was for British industry in general. From 1932 onwards unemployment in the wool and silk industries decreased rapidly, so that the index for 1935 was approximately the same as the general index, whereas in the case of cotton the decrease was slower and the index in 1935 was still 50 per cent higher than the index for industry in general.

From this it may be deduced that the rapid increase in unemployment from 1929 to 1931 in the wool and silk branches was due mainly to the cyclical factor, to which these branches proved particularly sensitive. In the cotton industry unemployment was no doubt also influenced by the depression, but the fact that it did not decrease after 1932 as rapidly as in industry in general clearly indicates the action of other factors, to which reference will be made later.

A comparison of the index numbers of unemployment in the textile industry and in industry as a whole shows that that industry was particularly sensitive to the influence of the depression, but it does not show whether the proportion of unemployment was higher or lower than in other industries. The fact that the index rose more rapidly for textiles than for industry in general may have been due to the fact that the initial unemployment was less just as well as to the fact that unemployment finally reached a higher level. In order to throw some light on this question the ratio between the proportion of unemployment in the textile industry and the proportion of unemployment in industry as a whole has been worked out for each of the countries in which statistics show the number of unemployed workers as a percentage of the total number of workers concerned. If the resulting figure is higher than, equal to or less than 100 this means that the percentage of unemployed workers in the textile industry is respectively higher than, equal to or less than the percentage in industry as a whole.

A study of table 3 shows that, with the exception of Canada (yarn and cloth) and Switzerland, the extent of total unemployment in 1927 was less—sometimes much less—in the textile industry than in industry as a whole. Except in Denmark and in Sweden, however, this unemployment increased much more rapidly as a result of the depression, so that it reached and sometimes considerably exceeded the level of unemployment in general. The ratio rose from 44.4 to 100.5 in Belgium, from 92.7 to 231.9



for the cotton industry and from 91.7 to 150 for the wool industry in Great Britain, and from 31.1 to 125.4 in the Netherlands. In the case of the two countries that provide regular statistics of partial or intermittent unemployment it will be seen that the percentage of partially unemployed workers in 1927 was already higher in the textile industry than in industry as a whole, and that this divergence increased as a result of the depression.

TABLE 3 — FLUCTUATIONS IN THE RATIO BETWEEN THE PERCENTAGES OF UNEMPLOYED WORKERS IN THE TEXTILE INDUSTRY AND IN INDUSTRY AS A WHOLE IN CERTAIN COUNTRIES FROM 1927 TO 1935

Countries and industries	1927	1928	1929	1930	1931	1932	1933	1934	1935
<i>Belgium</i>									
Wholly unemployed	44.4	77.8	61.5	75.0	84.4	100.5	93.5	93.1	78.2
Partially unemployed	138.5	208.6	113.9	202.5	154.4	139.6	143.6	154.6	143.0
<i>Canada</i>									
Fibres, textile and textile products	189.8	173.3	229.8	154.9	143.4	136.4	78.4	86.3	104.5
Textile and carpet workers	51.0	46.7	28.1	208.1	101.8	110.0	93.3	84.1	115.6
<i>Denmark</i>	95.1	100.0	71.6	87.6	62.0	33.4	25.7	37.5	21.4
<i>Great Britain and Northern Ireland</i>									
Cotton	92.7	111.1	126.9	231.9	180.1	129.9	121.6	135.1	134.8
Wool	91.7	108.3	133.6	150.0	132.9	91.1	71.3	95.2	83.9
<i>Netherlands</i>	31.1	36.8	45.1	118.5	125.4	114.1	406.8	109.3	106.6
<i>Sweden</i>	26.7	24.5	31.8	29.5	21.5	28.5	42.9	25.9	38.5
<i>Switzerland</i>									
Wholly unemployed	148.9	176.2	172.2	114.7	81.1	97.8	100.0	93.6	90.0
Partially unemployed	260.0	227.3	294.1	169.4	135.5	138.3	143.2	176.3	211.5

Imperfect as the available unemployment statistics may be, the analysis given would seem to permit of certain broad conclusions: (1) the textile industry in many countries proved especially sensitive to the influence of the business depression, so that fluctuations in unemployment were more acute than in industry in general, (2) partial unemployment or short time would appear to have been more widespread in the textile industry than in other industries and tended to increase at a particularly rapid rate at the beginning of the depression, (3) the different branches of the textile industry

were not all affected in the same way by the depression, some of them, and more especially the cotton industry, suffered much more from unemployment than others. On this last point, however, little information can be obtained from unemployment statistics, since Great Britain is the only country to provide separate unemployment figures for various branches of the textile industry.

It is in this connection especially that it is desirable to supplement the study of unemployment statistics by data on employment. Employment and unemployment are to a great extent complementary phenomena. Unemployment normally increases when employment decreases and declines when employment improves. If the total number of workers in employment or seeking employment in an industry remained constant unemployment and employment would vary inversely to exactly the same extent. But in reality the number of workers belonging to an industry is constantly changing. There are, on the one hand, workers who on account of age or infirmity, or, in the case of women workers, on account of marriage, abandon wage-paid employment altogether, others seek employment in a different industry, while yet others—foreign workers—are often obliged to return to their country of origin in times of depression if they drop out of employment. There are, on the other hand, young workers or workers from other industries or other countries who come to seek employment in the industry in question. If the number of departures exceeds the number of new persons entering the industry the volume of employment in that industry may decline to a greater extent than unemployment increases,<sup>1</sup> it may even decrease without any increase in unemployment or accompany a decrease in unemployment. If, on the other hand, the number of persons absorbed into or attracted by the industry is greater than the number of those who leave it, the increase in the volume of employment may exceed the decrease in unemployment or may be accompanied by no decrease in unemployment or even by an increase in unemployment. In order to have some idea of the influence of the depression on the employment market of any industry, therefore, one must

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**TABLE 4 — COMPARATIVE FLUCTUATIONS IN EMPLOYMENT IN THE  
TEXTILE INDUSTRIES AND IN INDUSTRY AS A WHOLE IN CERTAIN  
COUNTRIES FROM 1927 TO 1935**

Countries and industries	1927	1928	1929	1930	1931	1932	1933	1934	1935
<i>Canada</i>									
Cotton (yarn and cloth)	100	98	91	80	75	74	72	84	85
Wool (yarn and cloth)	100	104	101	90	100	108	115	123	114
Silk and silk goods	—	—	100	125	143	172	184	223	248
Thread yarn and cloth	100	101	97	90	91	97	98	113	118
Textile products	100	101	102	97	93	93	93	103	108
All industries	100	107	111	107	97	82	80	92	95
<i>Finland</i>									
Textile	100	97	92	88	86	88	97	116	129
All industries	100	103	96	85	77	78	85	96	107
<i>France</i>									
Textile	—	—	—	100	93	79	79	77	71
All industries	—	—	—	100	93	81	79	77	71
<i>Great Britain and Northern Ireland</i>									
Cotton	100	92	92	64	63	67	72	69	66
Wool	100	99	95	84	74	79	91	83	87
Silk and artificial silk	100	133	134	121	102	113	117	125	140
All industries	100	99	102	98	94	93	97	101	103
<i>Italy</i>									
Cotton	*	*	100	87	73	66	67	65	*
Wool	*	*	100	96	87	87	95	96	*
Silk	*	*	100	101	83	42	44	36	*
Artificial silk	*	*	100	91	73	53	50	53	*
All industries	*	*	100	93	81	70	71	72	*
<i>Japan</i>									
Silk reeling	100	100	107	100	80	75	69	68	68
Spinning	100	90	90	76	68	70	70	76	81
Weaving	100	92	89	77	72	73	80	84	88
Braiding, knitting	100	84	83	78	77	75	84	92	97
All industries	100	96	96	86	78	79	87	97	106
<i>Poland</i>									
Textile	100	108	101	81	75	68	72	79	83
All industries	100	111	112	97	83	71	70	76	80
<i>United States</i>									
Cotton goods	100	90	91	76	70	64	83	89	85
Cotton smallwares	100	*	102	*	86	72	81	86	90
Wool and worsted goods	100	96	95	78	77	69	90	84	110
Silk and rayon goods	100	100	102	94	86	68	74	74	71
Textile fabrics	100	95	98	85	79	71	86	88	92
Total textiles	100	98	101	89	84	74	85	88	92
All industries	100	100	106	93	78	65	70	80	83

study employment statistics as well as unemployment statistics

In table 4 will be found available index numbers of the amount of employment for the textile industries and for industry as a whole, 1927 being taken as the basis wherever possible. These figures have a double advantage over those available for unemployment. In the first place, they provide indirect information as to the trend of unemployment in the textile industries of certain important countries for which no unemployment statistics are available, such as Japan and the United States. In the second place, they reflect the development of the various branches of the textile industry in several countries during the depression, whereas unemployment statistics provide detailed information of this kind in the case of Great Britain only.

Generally speaking, a study of table 4 confirms the conclusions suggested by table 1. In practically every case the influence of the depression can be seen in the manner in which the volume of employment contracted in the textile industries as well as in industry in general. It was usually in the same year that the general index of employment and the index of employment in the textile industries reached their lowest points.

Apart from this general similarity, the figures in question show more extensive divergences than had been revealed by the unemployment data. In some countries the volume of employment in the textile industries was more affected than the general volume of employment. This was the case in Poland, in all the textile branches in Japan and in all the textile branches except the wool industry in Italy. In Finland, Germany and practically every branch of the textile industry in Canada and the United States, on the other hand, the shrinkage of employment was less marked than in industry as a whole. In Great Britain, the position of the silk industry was particularly favoured, for employment was, on the whole, considerably higher than it had been in 1927. In Canada, employment in the silk and silk goods industry improved steadily from 1929 to 1935.

Over against these favoured industries there were the cotton industry in Canada and Great Britain, the cotton and silk branches in Italy and the silk-reeling and cotton-spinning branches in Japan, where employment fell in a particularly marked degree as compared with the general volume of employment in industry. In these industries, moreover, employment did not improve from 1932 or 1933 onwards to the same extent as it did in industry in

general. In some cases (cotton in Great Britain and Italy, silk in Italy and silk-reeling in Japan) employment even continued to decline in spite of the general business improvement. These phenomena reveal the action of factors other than the economic depression. In the following pages these other factors and their influence will be considered.

## II — TECHNOLOGICAL UNEMPLOYMENT

There can be no doubt that, in recent years, the textile industry has experienced a considerable amount of technological unemployment in many countries<sup>1</sup>. There are other industries in which technical progress has caused a much greater upheaval than in the textile industry, but mechanical improvements in textiles have, as elsewhere, been making rapid headway. Automatic looms have been replacing non-automatic looms, high-speed spindles have supplanted low-speed spindles, etc. Moreover, work-loads have shown a tendency to increase and the pace of manufacturing operations a tendency to accelerate, with the result that textile workers have been complaining of the "speed-up" and the "stretch-out".

### *Increase in Labour Productivity*

Though the problem is complex and it is impossible to measure technological unemployment directly, there are indirect ways of indicating its existence and probable extent. The calculations made in some countries with a view to determining the increase in labour productivity between two specific dates represent a first attempt, but only a first attempt, to grapple with the problem. These calculations show whether rationalisation has actually taken place during a given period, and where labour productivity has risen at a comparatively rapid rate it may reasonably be inferred that employment has been more or less strongly affected by technological factors.

So far, coefficients of labour productivity have been computed for a few countries only and for only a few branches of the textile industry. These calculations are beset by numerous difficulties. In order to establish a reasonably reliable coefficient, exact statistics

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<sup>1</sup> The relation of technical progress to unemployment in its general aspects is treated in a study by Dr L. FÉDÉRIK entitled *Technological Unemployment*, shortly to be published by the International Labour Office.

of the hours worked and equally exact returns of production must be available, moreover, these two series of figures must cover exactly the same undertakings. These conditions are very rarely found together. And even though they may be regarded as sufficient for certain industries, such as coal mining or the cement industry, in which the product is a homogeneous mass and there is little if any variation in the intensity of work, such data hardly form an altogether acceptable basis for calculating labour productivity in the textile industry. Even the most precise returns of hours worked do not show that form of under-employment, very common in the weaving branch, which consists in reducing the number of looms in charge of each worker when orders are low and leads to a decline in output per head due neither to inferior technique nor to a falling-off in the standard of skill. As regards the physical volume of production, whether expressed in terms of weight or of yardage, this does not reflect changes—sometimes important ones—in the quality of the goods produced, which may raise their value while reducing their weight per square yard. Labour productivity may have remained stationary or may even have increased, in spite of a decline in the physical volume of production which causes the coefficient to fall. Again, the physical volume of production may be reduced, in the textile industry, by the employment of inferior raw materials, such as softer fibres which, owing to the greater frequency of breakages, demand more work for an equal output both in spinning and in weaving. Here again the coefficient would fall, without any real decline in the objective or subjective productivity of labour, to use the customary terms. The coefficient of productivity is also affected by changes in the skill and ability of the workers resulting from changes in the composition of the labour force.

With these reservations, it is possible, nevertheless, to bring together some data on changes in labour and machine productivity in the textile industries of some important producing countries: Japan, the United Kingdom, the United States and Italy.

### *Japan*

It is in Japan that labour productivity has increased most rapidly since the World War, at least in those branches of the textile industry—cotton spinning, cotton weaving, and silk spinning—for which statistics are available permitting the computation of output per worker. The figures show a remarkable rise in

average output Those relating to cotton spinning for the years 1923 to 1933 are given below <sup>1</sup>

TABLE 5 — PRODUCTION OF COTTON YARN PER WORKER IN JAPAN, 1923-1933

Year	Number of workers	Spindles in operation	Number of spindles per worker	Production of yarn (millions of kwans) (a)	Production per worker (kwans) (a)
	Daily average (thousands)				
1923	163	4,080	25	107	656
1929	159	5,784	36	117	862
1930	139	5,898	42	124	892
1931	122	5,904	49	126	1,033
1932	127	6,308	50	138	1,087
1933	129	6,778	52	152	1,178

(a) One kwan = 3,750 grammes

This table shows that output per worker almost doubled between 1923 and 1933 and that, total production having expanded by only about 50 per cent, the labour force fell from 163,000 to 129,000, or by 34,000 persons.

In the cotton weaving branch, the figures show a still more marked increase in production per worker, amounting to nearly 150 per cent, as may be seen from the following table.

TABLE 6 — PRODUCTION OF COTTON CLOTH PER WORKER IN JAPAN, 1923-1933

Year	Number of workers	Looms in operation	Number of looms per worker	Production of cloth (millions of yards)	Production per worker (thousands of yards)
	(thousands)				
1923	51(a)	53	1.04	1,001	19.6
1929	43	69	1.60	1,538	35.7
1930	35	65	1.85	1,388	39.6
1931	29	64	2.20	1,405	48.4
1932	30	68	2.26	1,533	51.1
1933	34	74	2.17	1,674	49.2

(a) 1924

<sup>1</sup> These figures and those which follow are taken from statistics published by the Factory Inspection Service of the Bureau of Social Affairs of the Japanese Ministry of the Interior. They are quoted here from Mr. MAURELLE's study on *Social Aspects of Industrial Development in Japan*, International Labour Office, Studies and Reports, Series B, No. 21.

Here again, in spite of the expansion of total output, which rose from 1,001 million yards in 1923 to 1,674 million in 1933, 17,000 fewer workers were employed in the latter year than in the former

In the silk-spinning industry, output per head rose steadily from 19 kwans in 1923 to 31 in 1932, or by 63 per cent

The rise in labour productivity as computed from these series of figures is undoubtedly an understatement of the true position. No account is taken of the reduction in hours of work, which fell from 11 in the day in 1923 to 10 in 1927 and  $8\frac{1}{2}$  in 1931 in cotton spinning and weaving, and from 12 hours in 1923 to 11 in 1927 and 10 in 1931 in silk spinning

It has also been pointed out by a Japanese writer,<sup>1</sup> that the number of workers shown in the table also covers those who are not directly engaged in production, such as mechanics, packers, etc., so that, in reality, the spindles are spread over a much smaller number of textile workers than the statistics indicate

Several factors have contributed to this vast rise in labour productivity in Japan. They include the better organisation of labour and improved methods of production within the undertaking, rationalisation throughout the industry, resulting in particular in the closing down of some of the less efficient undertakings, to some extent, the higher standard of skill among Japanese workers, but, above all, the rapid modernisation of plant. It is estimated that, of the 9,530,000 spindles which Japan possessed at the beginning of 1935, about 4,000,000 were less than ten years old and were mostly high-speed spindles. Nearly all the big mills are equipped with automatic looms of the high-speed type manufactured by the Toyoda works.<sup>2</sup>

### *United Kingdom*

In the United Kingdom, reports indicate that since the war relatively little modernisation of plant has taken place in the cotton industry and that until 1931 the Lancashire cotton trade did little to improve organisation and structure.<sup>3</sup> A survey made in 1931, at the request of the Board of Trade, showed that at that

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<sup>1</sup> MORI, "Le régime du travail dans l'industrie cotonnière du Japon", *Fils et tissus*, May 1935

<sup>2</sup> UNITED STATES TARIFF COMMISSION *Report to the President. Cotton Cloth Report*, No 12, second series

<sup>3</sup> See especially the *PEP Report on the British Cotton Industry*. Also Chapter VIII



date no technical improvements had been introduced on a scale large enough to increase output per head in the industry as a whole <sup>1</sup>

The investigators compared the indices of production with the indices of employment in the cotton industry, in order to obtain a coefficient of labour productivity. This coefficient shows a fairly steep fall.

TABLE 7 — INDICES OF PRODUCTION, EMPLOYMENT AND PER CAPITA OUTPUT IN THE COTTON INDUSTRY OF GREAT BRITAIN FROM 1924 TO 1930

Year	Production	Employment	Per capita output
1924	100	100	100
1925	113	109.6	102.7
1926	96	98.5	97.5
1927	106	107.2	98.9
1928	96	102.1	94.0
1929	94	101.0	93.1
1930	68	72.7	93.5

The authors of the survey nevertheless themselves admit that the coefficient so obtained is practically worthless. The index of production on which it is based relates to the yarn produced, so that any change in the ratio between the output of yarn and cloth would suffice to destroy any significance it might possess. Moreover, the employment index does not show the variations in the number of hours of work or in the intensity of work, especially in the weaving branch. But the chief defect of the coefficient is that it does not show changes in the quality of the goods produced, which may raise the value of production while reducing its volume. The authors conclude that, in view of the unreliability of the statistics, it is preferable to confine oneself to current observation, which indicates that labour productivity has not fallen to the extent shown by the coefficient. The necessity of reducing costs in the cotton industry and eliminating waste, and the selection operated when dismissals had to be made, have undoubtedly enabled output per head to be maintained at the former level.

The following table which is based on changes in production shows, moreover, that, while a comparison of the index numbers of production and employment reveals, at any rate in weaving, a decrease in

<sup>1</sup> *An Industrial Survey of the Lancashire Area, made for the Board of Trade by the University of Manchester, London, 1932, pp. 128-130.*

productivity between 1924 and 1930, it indicates, on the contrary, that there was increased productivity between 1930 and 1934

TABLE 8 — INDICES OF PRODUCTION AND EMPLOYMENT IN THE COTTON INDUSTRY OF THE UNITED KINGDOM IN 1924, 1930 AND 1934

	Index of volume of production		Index of average number of operatives employed	
	Spinning	Weaving	Spinning	Weaving
1924	127	165	138	139
1930	100	100	100	100
1934	113	110	97	86

SOURCES *Census of Production, 1924 and 1930, Import Duties Act Inquiry, 1934*

### United States

The coefficients computed for the United States<sup>1</sup> show that in most branches of the textile industry labour productivity has risen, although far less than in Japan. It is probable that the fairly steady rise in labour productivity in the cotton industry is due to the establishment of new factories with up-to-date equipment in the cotton-growing States of the South. The variations in the coefficient of labour productivity in ten branches of the textile industry from 1929 to 1933 are shown in the following table

TABLE 9 — VARIATIONS IN LABOUR PRODUCTIVITY IN THE TEXTILE INDUSTRY OF THE UNITED STATES, 1923-1929

	1923	1925	1927	1929	Average annual rate of change 1923-1929 (per cent)
Silk manufactures	100 0	112 6	123 2	135 4	+ 5 1
Carpets and rugs	100 0	97 8	92 5	108 0	+ 0 9
Wool shoddy	100 0	108 8	92 7	124 1	+ 2 7
Cordage and twine	100 0	107 0	107 9	118 2	+ 2 6
Cotton goods	100 0	103 9	110 7	115 2	+ 2 5
Jute and linen goods	100 0	97 2	106 8	113 5	+ 2 4
Worsted goods	100 0	105 5	107 5	106 5	+ 1 0
Woollen goods	100 0	105 8	104 4	106 6	+ 0 9
Cotton lace goods	100 0	90 5	99 7	99 0	+ 0 3
Knit goods	100 0	98 4	97 4	96 9	- 0 5

<sup>1</sup> *Economic Tendencies in the United States*, published by the NATIONAL BUREAU OF ECONOMIC RESEARCH, 1932

The above series do not seem to have been continued after 1929. For the period 1932-1935 calculations have been made of the variations in labour productivity per man-hour, but only for the two most important branches of the textile industry <sup>1</sup>

	Variations in labour productivity per man-hour 1932-1935	
	Cotton goods	Woollen goods including worsted goods
1932	100	100
1933	102	100
1934	100	97
1935	105	128

The author himself states that these coefficients cannot be regarded as absolutely correct. The statistics of hours worked are incomplete because only a fraction of the firms concerned furnish returns. The indexes of production calculated by the Federal Reserve Board are usually based on the raw materials consumed during the preliminary stages of production, which are also supposed to apply to the subsequent stages. Moreover, the two series of indices are not entirely comparable.

In spite of these reservations, the increase in productivity shown by the above computations probably approximates fairly closely to the facts for the period as a whole. For the cotton textile industry, for instance, a comparison between the number of workers employed and the cloth produced gives the following figures:

	Number of workers (thousands)	Square yards of cotton cloth (millions)
1923	472	8,264
1927	468	8,980
1933	379	8,089

The number of workers employed having fallen between 1923 and 1933 from 472,000 to 379,000 (20 per cent) and production from 8,264 million yards to 8,089 million (2 per cent), the average increase in productivity was about 18 per cent.

### *Italy*

Finally, in Italy, it has been calculated that in the textile industry as a whole the volume of production per working hour more than doubled between 1933 and 1935, this representing an average annual increase of nearly 3 per cent. It is further estimated that

<sup>1</sup> W. BOWDEN, in the *Monthly Labor Review*, April 1936.

labour productivity has increased at a particularly rapid rate during the past few years. The writer quoted states that apart from an increase in productivity due to technical improvements (7.15 per cent for cotton and 18.2 per cent for rayon from 1929 to 1934, and 12.63 per cent in silk for 1930 to 1934) output has also risen as a result of an increase in the individual productivity of the workers (24.17 per cent for cotton and 152.98 per cent for rayon from 1929 to 1934, and 19.77 per cent for silk from 1930 to 1934).<sup>1</sup>

### *Extent of Displacement*

Although the computations of the movement of labour productivity do not make it possible to ascertain directly the extent of unemployment due to rationalisation, they give some idea of the extensive displacements which rationalisation may involve, and it is desirable that national statistics should be compiled making it possible to render such studies more precise and more complete. The direct but always partial investigations into rationalisation measures adopted in one or several undertakings throw little light on the progress of rationalisation in an industry as a whole or in any one of its separate branches. Except in the countries in which the textile industry is of quite recent development, with the result that equipment may be more or less uniform in type, the technical standard of plant usually differs considerably from one undertaking to another. The plant used in the textile industry is comparatively expensive, and the average lifetime at least of the more delicate parts of the machinery is fairly long, owing to the softness or pliability of the materials handled, so that it would place an unduly heavy burden of fixed costs on the undertaking to replace the old plant whenever a new technical improvement became available. Hence, in countries with an old-established textile industry there is usually great diversity in the technical equipment of the undertakings, the newest naturally being equipped with the most modern plant. It is extremely difficult, if not quite impossible, to ascertain the real pace at which rationalisation has proceeded and its effects on employment by means of enquiries on the spot, and it is therefore hardly profitable to cite here the particular cases of rationalisation which have been observed in specific undertakings.<sup>2</sup>

<sup>1</sup> TREMELLONI *L'industria tessile italiana*, 1936, p. 236.

<sup>2</sup> An especially full report on this subject, covering a large number of industries, was published in Czechoslovakia in 1932 by the Ministry of Social Welfare, summarising the reports of the factory inspectors. The title of this publication is *Die Rationalisierung und ihre sozialen Wirkungen*.

Mention may be made in conclusion, however, of the especially detailed estimates made by the investigators of the University of Manchester as regards the number of workers likely to be displaced by the introduction of certain machines or methods of production. High-draft spinning on ring frames is not yet common in the British cotton industry, where this type of spindle formed only 27 per cent of all spindles in 1936, as compared with virtually 100 per cent in Japan and 99 per cent in the United States. The change over from low-draft to high-draft spinning in a mill employing 300 workers would reduce the staff required to 240, and would also involve extensive changes in its sex and age distribution as follows

	Old system	New system
Men	76	14
Women	90	169
Youths	50	—
Boys	54	—
Girls	30	37
	<u>300</u>	<u>240</u>

High-speed winding and warping, which have been very widely adopted in the United States but are still uncommon in Lancashire, would reduce the number of workers necessary to produce a given output from 56 to 52, 41 or even 14, according to the thoroughness of the system adopted. The "more looms per weaver" movement, which has not yet been widely introduced, would have the effect of reducing the number of workers necessary for the same output as follows

	Men	Women	Total
4 looms	111	207	• 318
8 looms	111	108	• 219

A few extra workers would have to be engaged under the new system for sweeping, oiling, and clearing away waste, but the percentage of dismissals would still be very high.

Finally, a change-over from the four-loom system to automatic looms would enable an output which at present requires 318 workers in all departments to be produced by only 114 workers. It is obvious that if these changes in methods of production, which would have far-reaching effects on employment, have so far been slow in establishing themselves in Lancashire, this is due to particular causes which are unlikely to disappear within a short space of time. According to the investigators, it is only the "more looms per weaver" system which has some chance of establishing itself fairly rapidly.

As already pointed out above, in interpreting the above findings, allowance must be made for the fact that the data are influenced by cyclical factors. The selective contraction and expansion of the labour force and of plant and equipment which employers practise during the ups and downs of business affect the various indices of machine and labour productivity. Perhaps the best comparison is afforded by considering only years of relatively full production, such as 1929 and 1936, or years of stagnation such as 1921 and 1931-1932.

### III — THE STRUCTURAL FACTOR

While technical progress is in itself a cause of changes in the structure of industry, the concept of structural unemployment, as used here, is related primarily to changes in consumers' demand for textiles and to changes in the localisation of supply due to the movement of capital and labour from older textile to newer textile producing centres.

The survey given in the preceding chapters shows the importance of the changes that occurred in the post-war period in the geographical distribution of the textile industry. It is unnecessary to add that these structural changes have had serious consequences with regard to the volume of employment in the old and the new textile centres. The new centres have had to recruit large numbers of workers and train specialists in the various manufacturing processes, whereas in the older centres textile workers have been exposed to unemployment, or short time, with a consequent steady decline in their standard of living.

As was pointed out above, it is extremely difficult to distinguish between the decline in employment due to these structural changes and that due to other causes. All that can be attempted here is to review certain facts indicating the existence of what may be called structural unemployment in certain countries.

#### *Great Britain*

Great Britain is undoubtedly one of the countries most seriously affected by the world-wide structural changes in the textile industry and the difficulties thereby imposed on an industry that had always worked mainly for export. There can no longer be any doubt that the most important branch of the British textile industry, the cotton

industry, is declining<sup>1</sup> The fact that the decline was not purely cyclical in character is brought out by the index of textile employment as compared with the general index of employment for all British industries, as shown in table 4 Whereas the fall in the two sets of index numbers was more or less parallel from 1927 to 1932, the general index began to rise again from 1933 onwards, reaching a higher level in 1935 than it had in 1929 But employment in the cotton industry continued to fall steadily and rapidly, being 20 per cent lower in 1935 than it was before the depression The number of persons insured in the industry, which was 562,130 in 1927 and 564,080 in 1930, was only 442,400 in 1935 and 420,850 in July 1936

TABLE 10 — PERSONS ENTERING AND LEAVING THE COTTON INDUSTRY, GREAT BRITAIN, FROM 1929 TO 1936<sup>1</sup>

Year	New Entrants Per cent	Net effect of Normal Wastage and Transfers in and out Per cent	Number insured in Percentage of preceding year
1929	4.6	4.5	100.1
1930	4.2	-2.5	101.7
1931	3.5	-6.0	97.5
1932	2.9	-8.7	94.2
1933	2.7	6.2	96.5
1934	2.5	-9.0	93.5
1935	2.6	-8.0	94.6
1936	3.4	-8.0	95.4

<sup>1</sup> Ministry of Labour Gazette, November 1929 1936

In the course of a few years, therefore, nearly 150,000 persons had lost their employment in the cotton industry and remained unemployed unless they were able to find jobs elsewhere Unemployment statistics reflect the consequences of this state of affairs During the whole of the cyclical depression the percentage of unemployed persons in the cotton industry increased much more rapidly than the percentage of unemployed in industry as a whole

<sup>1</sup> In a recent study Sir William Beveridge classified the various branches of British industrial activity in five groups according to the development of employment during the period 1923 to 1936 Twelve industries in which employment fell by more than 20 per cent during those years were classified as "declining industries" Of those, the cotton industry showed a decline in employment of about 22 per cent from 1923 to 1935 (W BEVERIDGE "An Analysis of Unemployment", *Economica*, November 1936)

(cf table 4) In 1931 it was 38·4 per cent, as against 21·3 per cent for industry in general. After that date it fell gradually but still remained definitely higher than the general unemployment figure.

The progressive fall in the percentage of unemployment in the textile industry since 1931 in spite of the constant decrease in employment clearly indicates that workers were leaving an industry which had for years been suffering severely from the depression. Table 10 strikingly illustrates this movement.

It will be seen that from 1931 onwards the departures are much more numerous than the arrivals, whereas the latter decreased steadily, the former increased, remaining stable at a comparatively high level in 1935 and 1936. It is in this way that the annual reduction of unemployment in this industry has been counter-balanced since 1931. A considerable reduction in the percentage of unemployment has actually been achieved, but it is still high. In September 1936 it was still 15, as against 13·6 per cent for industry as a whole. If we accept the view that the irreducible minimum of unemployment should now be estimated at about 7 or 8 per cent instead of 2 per cent, as before the war,<sup>1</sup> it will be seen that unemployment in the textile industry is still double this minimum.

Writers who have studied the situation have pointed out the serious obstacles in the way of a sufficiently rapid restriction of the volume of employment in the cotton industry and the transfer of workers to other industries. The enquiry carried out by the University of Manchester in 1932 into the industrial situation in Lancashire, brought out three main reasons for the relative immobility of workers in the cotton industry in that year.<sup>2</sup> The first is to be found in the nature of the work and its geographical distribution. A large number of cotton operatives are specialists who cannot pass to other skilled employment without previous occupational rehabilitation. Moreover, the British cotton industry is restricted to certain parts of the country and the majority of the workers therefore live in towns where there are very few opportunities of finding other employment.

The second reason is that the Lancashire cotton industry employs a very large proportion of married women<sup>3</sup> whose earnings help

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<sup>1</sup> Sir William BEVERIDGE *Loc cit*

<sup>2</sup> *An Industrial Survey of the Lancashire Area, made for the Board of Trade by the University of Manchester*, London 1932

<sup>3</sup> In 1921, 28 per cent of the women employed in the textile industry in Lancashire were married, whereas the proportion for all other British industries was only 14 per cent.



to make up "family incomes" In this case the problem of transferring the unemployed is rendered difficult by the necessity for moving whole families, only some of the members of which are out of employment whereas others can still find employment in the district The same difficulty exists also in the case of unmarried young persons, who are often unwilling to leave the depressed areas, in which they can always rely on their families to help to maintain them if necessary

In a later study<sup>1</sup> attention is drawn to another factor, namely, the high proportion of unemployed men in the upper age groups, in which the period of unemployment has been prolonged

Finally, there is the fact that the system of short time and under-employment has been very widely applied in the Lancashire cotton industry Undertakings in that industry have thus maintained many more workers on their staffs than are really required In spinning mills the normal method is to close down the factory entirely for a certain number of days weekly In weaving a different system is employed it is the looms and not the workers that are thrown out of employment, the number of looms per worker being reduced This last form of under-employment completely escapes the unemployment statistics, and even the short time worked in spinning mills may not be shown in the statistics of "workers temporarily stopped"

In view of this situation the authors of the enquiry set themselves to consider what was the "normal" level of employment in the British cotton industry at the present time—that is, the volume of employment corresponding to the real producing capacity of the industry and providing full-time occupation for the workers In other words, they tried to determine what was the "surplus" of labour that should be transferred to other occupations

For the purposes of its enquiry the University of Manchester decided that the conditions in 1929 might be considered as "normal", although it did so with reference to the years preceding that date rather than with reference to subsequent years<sup>2</sup> The enquiry revealed that in 1929 there were some 63,000 unemployed workers in the cotton industry and that this figure should be increased by from 10,000 to 15,000 to allow for unemployment concealed in the form of short time or under employment The number of workers

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<sup>1</sup> *Readjustment in Lancashire*, by members of the Economic Research Section of the University of Manchester; Manchester, 1936  
*Op. cit.*, p. 160

in excess of the normal requirements of the cotton industry in the Lancashire area was therefore assessed at about 75,000. The subsequent development of that industry, however, shows that from 1929 to 1936 about 134,000 workers were eliminated from those employed and that in October 1936 there were still about 60,000 registered unemployed workers in the cotton industry. As the general economic situation in autumn 1936 in Great Britain was at least as favourable as in 1929, and as the number of registered unemployed in the cotton industry was practically the same in 1936 as in 1929, it may be concluded that the elimination of some 134,000 persons was not sufficient to rectify the situation on the employment market in that industry. The 60,000 workers who are still unemployed represent 15 per cent of the insured workers. It is true that a fraction of these may be taken as the irreducible minimum referred to above. But even if that minimum were placed at  $7\frac{1}{2}$  per cent, the number of "surplus" workers would still be about 30,000, without taking account of all those who are working short time or under other forms of under-employment.

But the cotton industry is not the only branch of the British textile industry affected by that factor. The jute industry would seem to have suffered even more severely. Employment in that industry fell in 1932 to 56.3 per cent of the 1923 level, and had only risen to barely 64.8 per cent in 1935. The percentage of workers unemployed in 1936 stood at the very high level of 27.9 (average for April and September).

In the wool industry, however, the situation is different. The index of employment fell in 1931 to 73.8, as compared with 100 in 1927. But statistics show (cf. table 4) that the increase since 1931 has been fairly considerable. The number of workers employed was 160,065 in 1931, and 198,599 in 1936. Consequently unemployment, which was 28.3 per cent in 1931, was largely reabsorbed during the succeeding years. In September 1936 it was only 9.2 per cent, which is much lower than the figures for the cotton and jute industries and even lower than the percentages of unemployment in industry as a whole.

#### *United States*

As pointed out on several occasions in this Report, a part of the cotton industry in the United States was affected by the systematic displacement of the centre of textile production from the North to the South of the country. This transfer began about 1890 and, after a lull during the war period, recommenced

with renewed force in 1920. The ostensible aim of the movement was to bring the spinning mills near the cotton fields, but the main reason would appear to have been the differences that existed between wage rates and other conditions of employment in the Southern and the Northern States.

The following table shows the changes that took place from 1921 to 1933 in the volume of employment in the cotton industry in the United States and in the distribution of the workers employed by that industry in different parts of the country <sup>1</sup>

TABLE 11 — NUMBER OF WAGE EARNERS IN THE COTTON INDUSTRY IN THE UNITED STATES FROM 1921 TO 1933

Year	United States	New England	Southern districts	Other districts
1921	412,058	185,941	178,732	47,385
1923	471,503	194,891	219,207	57,405
1925	445,184	164,074	228,771	52,339
1927	467,596	154,634	260,713	52,249
1929	424,916	127,041	254,839	43,096
1931	329,962	90,127	208,664	31,171
1933	379,445	90,596	256,848	32,011

The total number of persons employed reached its maximum of almost 472,000 in 1923. In 1931, when the depression was acute, the figure fell to about 330,000, but rose again to 379,000 in 1933. The trend of the movement, however, was by no means the same in the Southern States as in New England. During these thirteen years, the proportion of the total number of workers employed in the South rose from 46 per cent in 1923 to 60 per cent in 1929 and 68 per cent in 1933. The volume of employment in the South in 1933 stood at the same level as in 1929. In New England, on the other hand, employment fell from 186,000 in 1921 to 127,000 in 1929 and continued to decline after that date until it reached 90,000 in 1931, since then it has remained more or less stationary. Thus, more than half of the workers who depended on the cotton industry for their livelihood in New England lost their employment over a period of ten years. The fraction of the total number of workers in the cotton industry of the United States employed in that district, which had been 50 per cent between 1904 and 1914 and which was still 47 per cent immediately after the World War, had fallen to 24 per cent in 1933.

<sup>1</sup> *Cabinet Committee Report*, p. 52

### *Other Countries*

Two examples have been given of the unemployment caused by the tremendous changes on the textile market in the post-war period. These examples obviously do not exhaust the subject. The workers of the great majority of the European countries with a textile industry of long standing have probably suffered more or less severely from the appearance of new competitors on the world market. The whole of the European textile industry is at present suffering from the disharmony between the volume of its means of production and of its labour supply and the markets available for its products. The unemployment among workers is merely a consequence of the idleness of the machines on which they should normally work. The figures given below make it perfectly clear that a large fraction of these machines are at present lying totally or partially idle. In 1931, the textile industry of Europe had 99,505,000 spindles and consumed 12,082,000 bales of cotton. On 31 July 1936, the number of spindles was 91,268,000, whereas the consumption of cotton was only 8,375,000 bales for the year ending 31 July 1936<sup>1</sup>. Thus, while the number of spindles fell by about 8 per cent, the decrease in the consumption of cotton was about 31 per cent. That explains the widespread unemployment and under-employment in the European cotton industry.

Another indication of the irregularity of employment from which this industry suffers is provided by the statistics of the number of hours during which spindles were stopped, during any given period. This may be called the short time worked by spindles, which obviously means under-employment for the workers in the spinning mills. The following are the data, expressed in terms of a 48-hour working week, for a few of the important textile countries of Europe<sup>2</sup>.

PERIOD DURING WHICH SPINDLES WERE STOPPED, EXPRESSED IN  
TERMS OF A 48-HOUR WORKING WEEK, DURING THE YEAR  
ENDING 31 JULY 1935

	Number of weeks
Czechoslovakia	22.58
France	18.53
Great Britain	14.18
Italy	25.11

<sup>1</sup> *International Cotton Bulletin*, September 1936, and Dr O. BANKWITZ "The Cause of the Depression in the World's Cotton Industry and Means to Overcome them", in *International Cotton Bulletin*, July-August 1933.

<sup>2</sup> *International Cotton Bulletin*, September 1935.

In those four countries, therefore, from 14 to 25 weeks of 48 hours each were lost in a single year because of the temporary stoppage of spindles. It is easy to imagine the volume of complete or partial unemployment that must have resulted.

When considering the extent of the structural unemployment that affected many of the "older" textile countries, the question arises as to the extent to which this has been offset by an extension of employment in the "new" countries. Of greatest importance in this connection are the three largest Asiatic textile countries—Japan, China and India. For the last two of these there are, unfortunately, no statistics to throw light on the question. The number of spindles in China increased from 3,433,000 in 1927 to 4,952,000 in 1936, while in India it increased from 8,714,000 to 9,686,000 in the same period. Normally a development of this kind should mean an increase in employment, but the example of Japan proves that there is no inevitable connection between the two phenomena. The employment index numbers for the three main branches of the textile industry in Japan have already been cited<sup>1</sup>. They show that, notwithstanding the very considerable extension of plant<sup>2</sup> and of production in the Japanese textile industry in the last decade, employment has decreased steadily. From 1929 to 1936 it fell by 11 per cent in spinning mills and by 27 per cent in silk reeling, whereas in weaving it remained at the 1929 level. As was indicated above, this is one of the consequences of the tremendous progress made in industrial rationalisation in that country. In India, also, it seems that the output per worker has increased, though to a less extent than in Japan.

The serious consequences of the changes in the structure of the world textile industry, from the point of view of employment, have been further complicated by certain events of a technical, rather than of an economic, nature—the development of new branches of the textile industry and more particularly of the artificial silk industry. The influence of this development on the employment of workers must certainly have been considerable, for the production of synthetic fibres increased from 12 million tons in 1916 to 516 million tons in 1935. It is difficult, however, to obtain an exact idea of the nature and extent of this influence.

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<sup>1</sup> See Chapter XIII.

<sup>2</sup> The number of spindles has been almost doubled in ten years, rising from 7,080,000 in February 1927 to 10,595,000 in February 1936.

Much has been said of the competition between artificial silk, on the one hand, and the natural silk and cotton industries on the other, and it is alleged that the decline of the two latter industries is due to the competition of the former. In support of this, the Italian natural silk industry has been taken as an example, for it was formerly very prosperous and is now in a state of decline. It is true that the index of employment in the Italian silk spinning mills fell from about 100 in 1928 to 36 in 1934 (of table 4), but employment also declined to a very marked degree in the artificial silk industry in that country (from 100 in 1928 to 53 in 1934), so that it was certainly not that industry that benefited from the change in Italy.

In Great Britain, the development of artificial silk would seem, on the whole, to have helped to relieve the situation on the employment market for the textile industries. The employment index for silk and artificial silk rose by more than 45 per cent from 1927 to 1930 and, although it declined after that date as a result of the depression, the fall was never more than 11 per cent at the maximum. From 1934 onwards the upward trend was resumed and the volume of employment in September 1936 was 8.5 per cent higher than in 1929. It is probable indeed that this extension of the possibilities of employment in the silk and artificial silk branches provided fresh occupation for some of the unemployed workers eliminated from the depressed sections of the textile industry.

It must be emphasised again that it is, generally speaking, extremely difficult to express in figures the influence that changes in the share of the total textile output produced by the different branches have had on the employment of workers in those branches. The change from the production of cotton to that of artificial silk can often be made without any change in industrial equipment. The American report already referred to<sup>1</sup> points out that, at the beginning of 1934, about one-third of the looms formerly used for the weaving of fine cotton goods were being used almost exclusively for the manufacture of rayon fabrics. In such a case, even a very marked decline in the production of cotton, accompanied by a parallel increase in the output of artificial silk, may not involve any change in the actual level of employment. Moreover, in spite of the fears expressed when artificial silk first appeared on the textile market this new product has not proved to be merely a competitor but is, in many cases, an auxiliary for the older textile fibres. The

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<sup>1</sup> *Cabinet Committee Report*, page 82

growing use of mixed fabrics (artificial silk mixed with cotton, silk or wool) often means an increase in the consumption of cotton, silk or wool yarn, and not a decrease <sup>1</sup>

The influence of this factor is further complicated by the effects of changes in fashion and in the habits of the public. These very sudden and very marked changes are one of the characteristic features and one of the chief risks of textile production. Their influence on the employment of workers is undoubted, but there is no practical means of isolating it from the influence of other factors and expressing it in figures.

#### IV — SUMMARY

A more complete study of the problems of employment and unemployment in the textile industry would have to consider such aspects as seasonal fluctuations, the influence of fashion, labour turnover, etc. These questions, however, were omitted in order to concentrate attention upon the three major factors whose influence has been especially important during the past years. Though the analysis made upon the basis of available material does not supply an exact picture of the situation, it nevertheless warrants some general conclusions.

There is no doubt that the employment situation in the textile industry was seriously affected by the business cycle during the years following 1929. The effects showed themselves not only in a large amount of unemployment but also in various forms of under-employment, the latter, however, seems at all times to be more widespread in the textile industry than in other industries.

Though the different branches of the textile industry were affected by the economic depression, the trend of employment in each one of these branches has been quite different since recovery began. While some of the branches of the industry have participated in the general upward movement, other branches, especially the cotton and silk textile industries, have shown a continued decline in employment. Unemployment in these two branches has remained considerable, indicating the action of other than cyclical factors.

Among the latter factors, undoubtedly one of the very important has been the increase in labour productivity due to technical

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<sup>1</sup> R. DEMOTTE "Le développement de l'industrie de la soie artificielle dans le monde", *Fils et Tissus*, December 1933

progress The influence of this factor is especially evident in Japan and Italy It is clearly discernible also in the United States On the other hand, it is much less important in the United Kingdom The continued unemployment from which some branches of the textile industry in Great Britain suffer, especially the cotton textile industry, must be attributed above all to the changes which have taken place since the war in the structure of markets These changes have affected adversely old centres of textile production and have raised for such centres and regions important problems as regards the reorganisation of industry and the readaptation of their labour force

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## CHAPTER XIII

### ECONOMIC FACTORS AND LABOUR STANDARDS

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In the preceding chapters, the economic and social conditions of the world textile industry have been described in some detail, and the major problems which the industry has faced in recent years have been outlined. It may be helpful to recapitulate the main findings. Briefly, owing to the spread of modern machine technology, the textile industry had begun, some time before 1929, to experience difficulties in countries where it had reached earlier a high stage of development. The dispersion of the textile industry to new countries and regions was greatly stimulated by the depression and by the economic policies to which the depression gave rise. Largely as a result of this process, pre-existing channels of the world trade in textiles were clogged up for some producers and reshaped as between particular exporting and importing countries. In the face of general curtailment of industrial activity after 1929, the rapid expansion of textile output and exports in and from a few countries which were able to exploit special home or export markets, accentuated the difficulties of all other textile manufacturing countries and aggravated the condition of their workers.

The complicated developments in the production of and trade in textiles, brought into existence, in a number of regions, "stranded populations" and "distressed areas" characterised by unemployment, irregular earnings, and declining standards of living. On the other hand, some countries in which the textile industry was expanding showed many of the features of a first rapid industrialisation such as low wages, long hours, and unusually high employment of women and children, despite increasing production and exports. The pre-existing national variations in wage rates and hours of work widened, resulting in an accentuation of international competition which hampered the efforts made in some countries to regulate national wages and working hours on a better plane. The general dislocations of the period due to falling

prices, monetary and commercial policies, and general economic measures necessarily worsened labour conditions also in the textile industry

At the present time some of the factors which made for confusion and disorder in the textile industry between 1930 and 1934 have been considerably changed. First and foremost, economic recovery has become worldwide, and its tempo has been accelerated. Second, the textile industry has been experiencing for some time a pronounced revival in most countries, and the trend is still upward. The turn in the condition of the industry in a number of countries may be seen from table 1.

TABLE 1 — INDICES OF INDUSTRIAL PRODUCTION IN THE TEXTILE INDUSTRY FOR SELECTED COUNTRIES, 1933-1936  
(1929 = 100)

	1933	1934	1935	June 1935	Jan 1936	June 1936	Sept or Oct 1936
Germany	98.1	106.8	98.3	89.1	100.8	99.7	109.1
Austria	89.3	111.2	128.5	104.8	148.6	124.9	143.1
Belgium	64.8	48.8	60.3	68.3	86.2	58.0	87.0
Canada	99.5	114.1	98.8	101.9	134.2	109.4	152.8
Chile	253.3	264.9	296.6	350.4	228.6	296.1	152.7
Denmark	132.2	142.6	139.9	135.3	148.8	164.3	158.1
United States	84.3	73.9	90.4	87.0	91.3	93.0	99.1
Finland	103.5	127.2	141.2	137.7 (a)	124.6 (b)	134.2 (a)	144.7 (c)
France	80.4	68.5	70.7	69.6	77.2	65.2	76.1
Greece	134.5	152.6	159.3	148.0	157.5	165.9	*
Hungary	115.6	129.4	123.1	115.8 (a)	127.5 (b)	149.5 (a)	*
Italy	75.0	72.4	75.3	71.3	*	*	*
Japan	114.4	126.2	135.9	134.3	113.0	129.4	143.5 (d)
Poland	65.7	74.8	77.9	78.1	80.3	81.2	81.9
United Kingdom	91.2	93.4	98.0	96.2 (a)	103.0 (b)	101.0 (d)	99.3 (c)
Sweden	*	(99)	(100)	(98)	(104)	(108)	(109)
Czechoslovakia	63.3	75.9	73.9	68.6	89.0	85.8	90.7

(a) Second quarter

(b) First quarter

(c) Third quarter

(d) September

SOURCE — LEAGUE OF NATIONS *Monthly Bulletin of Statistics*, Dec 1936, p. 557

The increase of activity shown in table 1 is not uniform for all countries, the variations depending in part on the stage of the general recovery in which the national economy as a whole happens to be. But the general upward trend is unmistakable. All indications seem to point to the conclusion that this upward trend in the textile industry is likely to be of some duration. Even assuming

that the rate of advance in the textile industry in the near future will only equal that of 1925-1929, it would mean a considerable range of expansion in textile production and trade

Third, some of the principal obstacles to international action in the textile industry are to-day shrinking in magnitude, although their importance is still great. Recent monetary developments promise to eliminate further currency devaluations as an instrument of international competition in the course of the next few years. And concurrently with the trend towards the narrowing of disparities in exchange rates and towards greater monetary stability, some of the barriers to the flow of textile commodities in world trade are being slowly broken down. Thus the devaluation of the gold bloc currencies coincided with a good deal of liberalising in the system of import quotas and licences. Again, rising commodity prices in the open world markets are operating to redirect some countries which have been relying upon barter arrangements into the more economic channels of world market trading. Finally, the lagging of wage rates behind commodity prices, usual during a period of recovery, means that the general importance of labour cost differentials as an element in international competition is likely to diminish.

The general question may now be asked. How do the economic factors in the textile industry affect the problem of labour standards on the international plane? In the light of the changes in textile production and trade described above, what problems must be faced in the attempt to improve social conditions in the industry in a manner consistent with economic exigencies?

An answer to the general problem raised implies an answer to a series of more detailed and specific questions. How, for instance, does the present recovery in the textile industry facilitate the problem of taking international action to raise labour standards? Is the present revival of the textile industry taking place under financial conditions—structure of capitalisation, burden of indebtedness, etc.—more favourable to continued profitability than those of the post-war prosperity? As unemployment decreases and wages and earnings rise generally, how far is effective demand for textile goods both in industrial and agricultural countries likely to increase? How would shorter working hours affect the retail prices of and the effective demand for textile goods in different markets? To what extent may it be expected that increased direct costs on account of labour, raw materials, etc., will be offset by increased volume of production and sales?

There are other important questions which arise out of the data presented in this Report. How are total costs and cost structures in particular countries affected by simultaneous changes in commodity prices and wage rates? To what extent are capacity and output being expanded by the increasing modernisation of plant and equipment in many countries and with what repercussions upon the question of "over-production" and "under-consumption"? To what extent likewise are technological improvements in the textile industry operating to raise machine and labour productivity and how does this affect the ability of the industry to sustain measurably higher labour standards? How would man-hour output respond to a shortened work-week in particular countries and regions, and with what reaction upon labour costs? How far could the effects of shortened work-weeks be offset by varying the present systems of work assignments and work shifts?

Last, but not least, there is the question of the most efficacious measures under particular local circumstances for dealing with "stranded populations" or "distressed areas". Should the attitude be that of waiting for the play of "natural forces" to liquidate redundant plant and surplus labour force? Should a programme of cutting down potential capacity be pursued, as in the United Kingdom? Or should legislation to level up labour standards in competing districts be enacted as under the N R A codes in the United States?

An answer to these questions would necessitate more specific studies on costs of production, wages, the relation of working periods to productivity, etc., than have so far been made available. All that can be done in this chapter is to summarise certain enquiries on wages, hours of work, costs and profits made in the United States and Japan and to indicate other available facts which may throw some light on the problems indicated.

## I — WAGES, HOURS OF WORK, PRICES AND PROFITS. THE UNITED STATES

The only country in which special studies on the interrelation of wages, hours of work, prices and profits in the textile industry have been made is the United States by the Federal Trade Commission. These studies are summarised here because of their interest and suggestiveness.

Under the N R A Codes for textile manufacturing, the maximum permissible hours of work were reduced to the general level of 40 a week, with compensating increases in hourly wage rates sufficient to maintain pre-code weekly earnings. In the sequel, however, the trade unions concerned began to press demands for still shorter hours and still higher rates of pay. These demands were founded on the circumstances, first, of rising costs of living which in part offset the increased wage rates, and second, of N R A orders authorising curtailment of maximum machine-hours to be operated (for cotton textiles at least) with no compensating increase in minimum wages, which were \$13 a week in the North and \$12 a week in the South. As a result of labour discontent to which this gave rise, the President of the United States instructed the Federal Trade Commission to undertake a series of enquiries into labour costs, profits and investments in the textile manufacturing industries <sup>1</sup>

The Federal Trade Commission puts emphasis on two questions which are of interest here: (1) Comparing specified periods before and after the N R A Codes, what changes occurred in labour and raw material costs as percentages of total production costs? and (2) What increases in prices of textiles might be necessitated by reductions in hours of work accompanied by offsetting wage increases if profit margins were to be retained at their former levels? The Federal Trade Commission treats these questions separately for cotton, woollen and worsted, silk and rayon, for spinning and throwing, weaving, dyeing and finishing, etc., for non-integrated as compared with integrated undertakings, and for enterprises operating on the basis of stocks purchased as compared with enterprises working on commission. All that can be done here is to summarise the results of these enquiries as briefly as possible.

#### *Labour, Raw Material and Total Costs*

Between June 1934 and June 1935, hourly wage rates in the textile industry rose considerably, to compensate for shortened hours of work as shown in table 2.

As a result of these changes in wage rates and working hours, the percentage of labour costs to total costs of production tended

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<sup>1</sup> L. L. Lorwin and A. Wuznic *Labor Relations Boards*, Washington 1935, pp. 415-421. At the same time, the Bureau of Labor Statistics was instructed to undertake inquiries regarding wages, hours and earnings with particular emphasis on regional differentials.

TABLE 2 — INDICES OF AVERAGE HOURS WORKED PER WEEK  
AND OF AVERAGE HOURLY EARNINGS, UNITED STATES TEXTILE  
INDUSTRY, 1932-1935

(January 1932 = 100)

A — *Average Hours Worked per Week*

	Cotton goods	Woollen and worsted goods	Silk and rayon goods	Dyeing and finishing	Knit goods
December 1932	106 1	112 1	108 0	98 2	107 7
March 1933	102 5	98 3	95 3	95 8	94 0
June 1933	114 3	123 2	108 7	112 4	110 5
September 1933	83 0	96 0	86 5	77 3	86 2
December 1933	77 7	88 4	81 3	78 6	81 4
March 1934	83 2	89 7	88 1	81 1	88 0
June 1934	67 5	83 9	83 8	65 6	83 0
September 1934	78 1	80 1	75 3	77 4	81 0
December 1934	83 7	96 0	91 9	80 4	87 3
March 1935	82 9	95 3	91 7	80 2	88 5
June 1935	75 6	98 1	87 2	69 9	77 1

B — *Average Hourly Earnings*

	Cotton goods	Woollen and worsted goods	Silk and rayon goods	Dyeing and finishing	Knit goods
December 1932	82 6	76 1	73 9	82 6	90 5
March 1933	79 0	73 1	72 6	81 0	86 2
June 1933	83 0	72 3	74 4	78 8	84 4
September 1933	133 7	99 4	104 3	105 4	126 5
December 1933	137 1	102 8	105 8	111 0	127 4
March 1934	137 1	104 9	106 9	111 4	129 7
June 1934	140 5	107 2	110 5	112 7	131 2
September 1934	137 1	107 2	112 9	115 4	135 6
December 1934	139 8	102 7	110 5	117 0	137 9
March 1935	140 5	104 2	111 7	116 0	136 5
June 1935	140 3	103 1	112 1	114 4	136 5

prices of semi-manufactures and of accessory supplies were changing profoundly during the period under review, while a processing tax, in accordance with the Agricultural Adjustment Act, began to be levied on the "first processing" of cotton after June 1933. The changes in the prices of at least raw materials during the period considered may be seen from table 3.

TABLE 3 — WHOLESALE PRICES OF REPRESENTATIVE GRADES OF TEXTILE FIBRES IN THE UNITED STATES, 1932-1935

(annual and monthly averages (in cents per lb.))

	Raw cotton (a)	Raw wool (b)	Raw silk (c)	Rayon yarn (d)
(1932)	(6.3)	(18.7)	(16.4)	(6.5)
Jan. 1933	6.2	18.0	14.4	6.0
June 1933	9.5	32.0	20.0	6.0
Jan. 1934	11.1	42.0	14.7	6.5
(1933)	(8.5)	(31.2)	(16.3)	(6.1)
Jan. 1934	11.1	42.0	14.7	6.5
June 1934	12.2	31.0	12.2	5.5
Jan. 1935	12.7	26.0	14.9	6.0
(1934)	(12.3)	(31.3)	(13.2)	(5.8)
Jan. 1935	12.7	26.0	14.9	6.0
June 1935	12.0	30.0	13.9	5.5

- (a) At New Orleans  
(b) At Boston  
(c) At New York  
(d) At New York

SOURCE: GERMANY: Statistisches Jahrbuch, Internationale Verrechnungen 1934-1935 1936

The actual changes which took place in the composition of textile costs in the United States during the period under consideration may be seen from tables 4, 5 and 6 which give the data for cotton, wool, silk and rayon separately.

In a complete analysis, much more than the price increments of the textile fibres would have to be taken into account. Chemicals and dyes are important raw materials in dyeing and finishing plants; yarn is a raw material for non-integrated weaving mills, grey cloth, similarly, a raw material for finishing establishments operating on stock. The internal accounting price of yarn need not exactly correspond, moreover, to the open market price.

TABLE 4 — PERCENTAGES OF MILL COST (a) REPRESENTED BY  
RAW MATERIAL AND BY LABOUR, UNITED STATES COTTON  
MANUFACTURING COMPANIES, SPECIFIED PERIODS

Type of company	Jan to June 1933	July to Dec 1933	Jan to June 1935
<i>Spinning</i>			
Raw material	53 0	43 0	47 7
Processing tax		12 6	11 6
	<hr/> 53 0	<hr/> 55 6	<hr/> 59 3
Labour	23 8	26 1	24 4
Total	<hr/> 76 8	<hr/> 81 7	<hr/> 83 7
<i>Weaving</i>			
Raw material	63 5	61 0	62 2
Processing tax		1 2	
	<hr/> 63 5	<hr/> 62 2	<hr/> 62 2
Labour	21 5	22 4	23 3
Total	<hr/> 85 0	<hr/> 84 6	<hr/> 85 5
<i>Combined spinning and weaving</i>			
Raw material	47 0	39 3	43 2
Processing tax		11 4	9 5
	<hr/> 47 0	<hr/> 50 7	<hr/> 52 7
Labour	27 1	28 8	27 3
Total	<hr/> 74 1	<hr/> 79 5	<hr/> 80 0
<i>Stock dyeing and finishing</i>			
Raw material	75 9	77 7	65 9
Processing tax		1 9	
Dyes and chemicals			8 4
	<hr/> 75 9	<hr/> 79 6	<hr/> 74 3
Labour	12 1	10 1	13 1
Total	<hr/> 88 0	<hr/> 89 7	<hr/> 87 4
<i>Commission dyeing and finishing</i>			
Raw material	34 2	31 9	1 5
Processing tax		0 4	
Dyes and chemicals			31 7
	<hr/> 34 2	<hr/> 32 3	<hr/> 33 2
Labour	36 2	39 1	35 9
Total	<hr/> 70 4	<hr/> 71 4	<hr/> 69 1

(a) Mill cost includes mill overhead but excludes general and administrative expenses

SOURCE — UNITED STATES FEDERAL TRADE COMMISSION *Textile Industries in the First Half of 1936*, Part 1, p 4



It is apparent from table 4 that the percentage of labour to total costs rose sharply in all but one branch of cotton manufacturing between the first and second half of 1933, the critical period when the N R A Codes were introduced. The necessary inference, in view of the abrupt upward movement of raw and accessory material costs during the same interval, is that the shorter work-week and higher hourly wages under the Codes tended to increase the weight of labour in the total cost structure. Between the second half of 1933 and the first half of 1935, as table 4 also shows, the labour percentage fell in some branches and rose in others. This was mainly the result of the interaction of the complicated movements of wage rates and commodity prices at varying rates.

Table 5\* below presents similar data for woollen and worsted undertakings.

TABLE 5 — PERCENTAGES OF MILL COST (a) REPRESENTED BY RAW MATERIAL AND LABOUR, UNITED STATES WOOLLEN AND WORSTED COMPANIES, FOR SPECIFIED PERIODS

Type of company	Jan. to June 1933	July to Dec. 1933	Jan. to June 1935
<i>Spinning</i>			
Raw material	60.6	63.2	63.2
Labour	22.1	21.9	23.8
Total	82.7	85.1	87.0
<i>Weaving</i>			
Raw material	71.0	72.5 •	73.0
Labour	19.3	19.1 •	18.6 •
Total	90.3	91.6	92.6
<i>Combined spinning and weaving</i>			
Raw material	58.3	52.5	51.5
Labour	32.1	31.4	31.7
Total	80.4	83.9	83.2
<i>Dyeing and finishing companies</i>			
Raw material	19.5	15.1	21.4 (b)
Labour	36.0	39.8	47.0
Total	75.5	75.1	68.4 •

(a) Mill cost includes mill overhead but excludes general and administrative expenses.  
(b) Dyes and chemicals.

SOURCE — UNITED STATES FEDERAL TRADE COMMISSION, *Textile Industries in the First Half of 1935*, Part 2, p. 1.

In contrast to the case of cotton manufacturing, the percentage of labour to total costs for woollen and worsted manufacturing enterprises declined between the first and second half of 1933 and then rose somewhat between the last half of 1933 and the first half of 1935. This behaviour of the labour percentage parallels more or less closely a steep rise in raw wool prices between 1933 and 1934 and a still steeper decline between 1934 and June 1935.

Table 6 below presents similar data for silk and rayon establishments.

Inasmuch as the prices of raw silk and of raw rayon were declining but moderately during the period under review, while chemical and dye prices were comparatively rigid, the pronounced increases in the labour percentage of total costs for almost all types of silk and rayon establishments represent very largely the impact of the N R A Codes in forcing up wage rates to offset reduced hours of work.

In brief, the studies of the Federal Trade Commission of the changing internal cost structure of textile manufacturing between 1933 and 1935 serve to illustrate the difficulties of trying to trace the exact results to be attributed to a shorter working week with unchanged weekly earnings. Such analysis is complicated by the fact that, under ordinary circumstances, wage rate changes are accompanied by changes in commodity prices, rates of activity, man-hour and machine-hour output, etc. Changes in commodity prices alone would be sufficient to obscure and disguise the independent influence of variations in working hours and wage rates upon the structure of costs. As already pointed out in another connection raw material costs ordinarily weigh from two to three times more than labour costs in the total composition of textile manufacturing costs. Accordingly, therefore, variations in the internal structure of manufacturing costs will reflect the incidence of altered commodity prices much more than that of altered wage rates. Thus, as commodity prices rise or fall, the importance of wage differentials tends to diminish or increase inversely.

### *Labour Costs and Profit Margins*

The second question considered by the Federal Trade Commission is as follows. If, at specified periods before and after the N R A Codes came into effect, weekly working hours had been reduced by given percentages with compensating increases in hourly wage rates, by how much would it have been necessary to raise selling

TABLE 6 — PERCENTAGES OF MILL COST (a) REPRESENTED BY RAW MATERIAL AND BY LABOUR, UNITED STATES SILK AND RAYON COMPANIES, FOR SPECIFIED PERIODS

A — Companies Operating on Stock			
	Jan to June 1933	July to Dec 1933	Jan to June 1935
<i>Throwing</i>			
Raw material	76.5	72.6	78.6
Labour	14.4	17.5	14.0
Total	90.9	90.1	92.6
<i>Weaving</i>			
Raw material	59.8	55.3	49.4
Labour	21.3	25.1	29.7
Total	81.1	80.4	79.1
<i>Combined throwing and weaving</i>			
Raw material	51.8	53.7	45.0
Labour	27.0	30.4	31.1
Total	78.8	84.1	76.1
B — Companies Operating on Commission			
<i>Throwing</i>			
Raw material	0.9	0.9	2.7
Labour	62.8	67.1	66.0
Total	63.7	68.0	68.7
<i>Weaving</i>			
Raw material	6.0	1.7	1.2
Labour	68.8	70.5	74.4
Total	74.8	72.2	75.6
<i>Combined throwing and weaving</i>			
Raw material	4.7	2.6	1.2
Labour	62.4	66.1	67.6
Total	67.1	68.7	68.8
<i>Dyeing and finishing</i>			
Raw material	36.8	33.2	32.9
Dyes and chemicals			
	36.8	33.2	32.9
Labour	33.6	35.2	38.9
Total	70.4	68.4	71.8

(a) Mill cost includes mill overhead but not general and administrative expenses

prices in order to preserve profit margins? In analysing this question—which may be called the question of “necessary price increments”—the Federal Trade Commission enquiries go a long way toward determining the pressure of increased labour costs on profit margins. It should be kept in mind, in the analysis which follows, that the calculations reproduced do not represent the “necessary price increments” resulting from mere compliance with code provisions on maximum hours and minimum wages (comparing the first half of 1933 with later periods) or from falling below maximum code hours and rising above minimum code wages (comparing the second half of 1933 with later periods). Instead, the calculations represent the necessary price increments during each period considered, for specified reductions in average hours actually worked accompanied by unchanged average weekly earnings, on the assumption of unchanged productivity. In other words, the procedure of the enquiry is first to determine the increase in wage rates required to maintain weekly earnings despite a specified reduction in the work-week, then to add the amount of that increase to the total wage bill, and finally to compute the effects on profits or losses.

Table 7 below presents the relevant data for cotton manufacturing

TABLE 7 — PERCENTAGE INCREASE IN PRICE TO COVER INCREASED LABOUR COSTS IF HOURS ACTUALLY WORKED HAD BEEN DECREASED BY SPECIFIED PERCENTAGES IN SPECIFIED PERIODS WITHOUT DECREASING WEEKLY WAGES

*Cotton*

Specified percentage of reduction in hours of work	Percentage of necessary increase in selling price									
	Spinning companies		Weaving companies		Companies combining spinning and weaving		Dyeing and finishing companies			
							Stock companies		Commission companies	
	Jan to June 1933	Jan to June 1935	Jan to June 1933	Jan to June 1935	Jan to June 1933	Jan to June 1935	Jan to June 1933	Jan to June 1935	Jan to June 1933	Jan to June 1935
2.5	0.5	0.6	0.5	0.5	0.6	0.7	0.3	0.3	0.8	0.8
5.0	1.1	1.2	0.9	1.1	1.3	1.4	0.6	0.7	1.7	1.7
10.0	2.3	2.6	2.0	2.3	2.7	3.0	1.2	1.4	3.5	3.6
20.0	5.3	5.9	4.5	5.1	6.0	6.7	2.6	3.1	7.9	8.2
25.0	7.0	7.8	5.9	6.8	8.0	8.9	3.5	4.2	10.6	10.9

SOURCES: UNITED STATES FEDERAL TRADE COMMISSION. *Textile Industries in the First Half of 1935*, Part I, p. 10. *The Textile Industries in 1917 and 1934* (unpublished), Part I, pp. 7, 14, 20 and 29.

As may be seen from table 7, for all groups of cotton manufacturing, the necessary price increments were set at a somewhat higher level in the first half of 1935 than in the first half of 1933. This upward tilting is to be attributed, in large part, to the cumulative effects of the increased labour costs supervening between 1933 and 1935 in consequence of code provisions.

Table 8 below presents similar data for woollen and worsted manufacturing.

TABLE 8 — PERCENTAGE INCREASE IN PRICE TO COVER INCREASED LABOUR COSTS IF HOURS ACTUALLY WORKED HAD BEEN DECREASED BY SPECIFIED PERCENTAGES IN SPECIFIED PERIODS WITHOUT DECREASING WEEKLY WAGES

*Woollen and Worsted*

Specified percentage of reduction in hours of work	Percentage of necessary increase in selling price							
	Spinning companies		Weaving companies		Companies combining spinning and weaving		Dyeing and finishing companies	
	Jan to June 1933	Jan to June 1935	Jan to June 1933	Jan to June 1935	Jan to June 1933	Jan to June 1935	Jan to June 1933	Jan to June 1935
25	05	06	04	04	07	07	08	12
50	10	12	09	09	15	15	17	24
100	22	24	19	19	31	31	32	51
200	49	55	43	43	71	71	85	114
250	65	73	57	57	94	94	97	152

SOURCE: UNITED STATES FEDERAL TRADE COMMISSION, *Textile Industries in the First Half of 1935*, Part II, p. 12. *The Textile Industries in 1933 and 1934* (mimeographed), Part II, pp. 8, 14, 20, 25.

The behaviour of the necessary price increments strongly suggests the operation of cost-price factors essentially similar to those of cotton manufacturing.

In considering the findings summarised above, it is necessary to keep in mind that the enquiries of the Federal Trade Commission presuppose that labour productivity would be unchanged by the shortening of the work-week—in other words, that the volume of man-hour output would remain constant. This assumption leaves out of account the fact that man-hour output is a variable which is partially dependent on the length of the working period.

Table 9 below presents equivalent data for silk and rayon manufacturing

TABLE 9 — PERCENTAGE INCREASE IN PRICE TO COVER INCREASED LABOUR COSTS IF HOURS ACTUALLY WORKED HAD BEEN DECREASED BY SPECIFIED PERCENTAGES IN SPECIFIED PERIODS WITHOUT DECREASING WEEKLY WAGES

*Silk and Rayon*

Specified per- cent- age of re- duc- tion in hours of work	Stock establishments						Commission establishments							
	Percentage of necessary increase in selling price													
	Throwing companies		Weaving companies		Companies combining weaving and throwing		Throwing companies		Weaving companies		Companies combining weaving and throwing		Dyeing and finishing companies	
	Jan to June 1933	Jan to June 1935	Jan to June 1933	Jan to June 1935	Jan to June 1933	Jan to June 1935	Jan to June 1933	Jan to June 1935	Jan to June 1933	Jan to June 1935	Jan to June 1933	Jan to June 1935	Jan to June 1933	Jan to June 1935
25	03	03	05	07	06	07	14	15	16	18	14	17	08	10
50	07	07	10	14	13	15	28	31	33	36	29	35	17	20
100	14	14	21	30	27	32	59	66	70	77	61	75	35	43
200	32	32	48	67	61	72	132	149	156	173	136	168	80	96
250	43	43	64	89	82	96	176	198	209	230	181	224	106	128

SOURCES UNITED STATES FEDERAL TRADE COMMISSION *Textile Industries in the First Half of 1935* Part III, p 14 *The Textile Industries in 1933 and 1934* (mimeographed), Part III pp 6 11, 16, 21 27, 32, 36

Although the Federal Trade Commission enquiries also present calculations of the actual rate of return on investment for specified pre-code and post-code periods, these rates are not directly relevant to the present analysis. Generally speaking, earnings improved between the first and second half of 1933, and thereafter deteriorated up to, in any event, the first half of 1935. But it would be entirely erroneous to try to correlate movements in the rate of profit with movements in wage rates and with the latter movements alone. Textile raw material prices were fluctuating throughout the period, followed by sympathetic but lagging variations in the prices of semi-finished and fully manufactured textile products. Equally important, there were wide variations in volume of output with the usual inverse repercussions upon unit costs on overhead account.

## II — BUSINESS EXPANSION, EMPLOYMENT AND WAGES JAPAN

Another country which has made available a considerable amount of information on the relation of business activity, profits and wages,

is Japan. As is well known, since 1931 the national economy of Japan has been experiencing a rapid expansion, the textile industry in particular grew in volume of output and exports. Profits and dividends of important categories of Japanese textile companies between 1928 and 1935 may be seen from table 10.

TABUL 10 — PROFITS AND DIVIDENDS IN JAPANESE TEXTILE MANUFACTURING, 1928-1935

Year (second half)	Profits (per cent on capital)  All textile in man- ufacturing	Dividends paid (a) (per cent on capital)	
		Cotton spinning companies	Woolen textile mills
1928	20.0	19.5	8.0
1929	9.3	19.2	5.6
1930	0.7	14.1	4.7
1931	12.3	12.6	5.6
1932	8.4	13.3	6.2
1933	17.7	13.9	6.9
1934	16.8	16.2	8.3
1935	17.9 (a)	15.5	8.6

(a) First half-year

SOURCE: *Japanese Trade and Industry*, 1936, pp. 143-144.

Thus, to judge by the profit and dividend rates, Japanese textile manufacturing has been a prosperous industry ever since 1928, and became even more prosperous with the increase in exports after 1931. At the same time, as shown elsewhere,<sup>1</sup> the efficiency of Japanese textile workers increased considerably during these years. Nevertheless, despite these conditions generally favourable to an improvement in labour standards, employment in the textile industry of Japan increased much less rapidly than volume of production while both money and real wages declined, as may be seen from table 11.

As already pointed out in Chapter X, when considering wage movements in Japan it is necessary to take into account the increased relative employment of young girls and the custom of paying a part of wages in food and lodging furnished at more or less nominal prices. It is also necessary to allow for increased total earnings due to opportunities for overtime work.

<sup>1</sup> See Chapter VIII and Chapter XII.

at overtime rates, and to multiple employment within family groups

TABLE 11 — PRODUCTION, EMPLOYMENT, EXPORTS AND WAGES IN THE JAPANESE COTTON INDUSTRY

(1930 = 100)

Year	Production (a)		Employment (b)	Exports (c)				Wages (d)	
	Yarn	Piece goods		Yarn		Piece Goods		Money wages	Real wages
				Volume	Value	Volume	Value		
1926			144	345	470		153	106	83
1927	100	93	131	197	258		141	104	86
1928	97	100	118	120	172	90	130	107	90
1929	111	111	118	113	178	114	152	105	90
1930	100	100	100	100	100	100	100	100	100
1931	102	101	90	53	57	89	95	89	102
1932	111	110	91	150	143	129	106	80	91
1933	123	121	93	81	104	133	141	74	79
1934	138	125	100	109	156	164	182	72	75
1935	141	133	106	162	239	175	182	71	73
1936 (d)	142	130	105	185	253	172	177	71	



### III — CONCLUSION

No matter what action may be attempted on a national scale to improve the position of the textile industry and to better its labour conditions, national policy must necessarily be affected by considerations of what other countries are doing or attempting to do. The main purpose of this Report has been to bring out clearly the world character of the textile industry and to show the extent to which the textile producing countries are interdependent in their economic and social policies affecting the industry.

The obvious conclusion suggests itself that the improvement of labour standards in the textile industry must be sought through international action. No attempt will be made here to formulate a programme. It is to be hoped that the Technical Tripartite Conference will bring to light more of the knowledge available in the industry on the relation of economic factors to labour standards and thus facilitate a solution of the many problems the supreme significance of which to the textile industry and to world economy in general is fully admitted by employers, workers and Governments.

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## CHAPTER XIV

### SUMMARY

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The concern about the future of the textile industry explains the present efforts to find new ways and means for its orderly reconstruction on the national scale in different countries. It is also clearly realised that in view of the worldwide ramifications of the textile industry, its rehabilitation and continued growth require measures of an international character as well. The further problem is thus raised of reconciling national and international policies if both are to work towards the same ends and if acceptable and practical programmes of reform are to be evolved and carried out.

This Report has aimed to supply the main facts upon which an international programme for the textile industry might be based. The facts elucidating both its economic and social problems have been presented in the twelve preceding chapters in considerable detail. Although such detailed treatment was necessary, it has undoubtedly resulted in complicating the picture somewhat. That could not be helped, the world textile industry is complex. In order, however, to promote a clearer discussion of policies, it may now be helpful to summarise the essential facts brought out heretofore. Such is the purpose of this concluding chapter.

### I

It is important, to begin with, to think of the textile industry as in process of continuous change and evolution. The textile industry—as a modern factory industry—is the product of influences at work for more than a century and a half, and these influences are still at work. In general terms, the process may be described as the spread of modern industrial techniques in the making

of textiles from their original source in England, first to Western Europe and North America, then to Eastern and Southern Europe and finally to Asia and Latin America. During recent years this process may have been accelerated and complicated by post war developments. But its underlying character persists and remains essentially unchanged. It is the advance of the Industrial Revolution as it reaches out to new corners of the earth. In this advance of the Industrial Revolution, each new country has tended to begin with the textile industry because of the relatively simple manufacturing processes involved, the availability of an adequate labour supply, and the relatively assured character of a domestic market for a staple product.

As a result of the steady advance of the Industrial Revolution, not only cotton but wool, silk and other textile fibres have been drawn into the factory system, and synthetic fibres, such as rayon, have been added to the list of textiles. While hand-weaving and domestic systems of production continue on a considerable scale in some countries, especially in Asia, the modern factory system of textile production has grown tremendously. Even within the limits defined in this Report, the textile industry is to-day one of the greatest industries in the world. Over 10 million men and women are engaged in its operations, and the value of textile exports is over one-sixth of the total value of all world exports.

Owing to its spread and development, the textile industry has become international in character, more so perhaps than any other industry. Its raw materials are drawn from many countries all over the world. The manufacture of its semi-finished and finished products is extremely widespread. Its products enter into all market outlets from backward colonial areas to the most advanced industrial countries. The prices, both of its raw materials and of its finished products, are formed in world markets by a competitive process which has steadily grown in extent and intensity. Textiles, in fact, are the staples of world trade *par excellence*. From the mills of Japan, the United Kingdom, France, Germany, Italy and other countries there pours forth a stream of textile products converging on the markets of the whole world. The competition among the principal textile exporting countries thus acts as a medium which transmits to the world textile industry as a whole the effects of changes in wage rates, of currency depreciation, of the erection or the breaking down of tariff barriers, etc. In a word, so many countries have become so largely dependent for their economic well-being upon the success or failure with which they

carry on one or more branches of textile production and commerce, that the industry may be said to be a true nerve centre of the present system of international economic relations

## II

In trying to form a picture of the textile industry it is necessary to think of it as a unified system of diverse but interrelated sub-industries. It is necessary to keep in mind the differences among its several branches based on the use of specific fibres such as cotton, wool, silk, rayon, linen and jute. The branches of the textile industry must also be differentiated according to the principal manufacturing processes—combing and carding, or their equivalent, spinning or throwing, weaving, and finishing, including dyeing, bleaching and printing—which are often connected with differences in industrial and commercial organisation. It is also necessary to keep in mind the specific ways in which the several branches of the textile industry react to general economic and social developments and to structural changes, thus giving rise to special social-economic problems in different countries and regions.

However, while keeping these differences in mind, it is essential to regard the textile industry as a unified entity, especially for the purpose of international action. First, the different textile fibres minister substantially to the same groups of economic wants of individuals for clothing, of households for furnishing, and of business enterprises for industrial fabrics. These fibres are thus to a large extent interchangeable. Second, the manufacturing processes employed in producing the different textile fabrics are substantially similar, with the exception of the chemical preparation of rayon yarn. It is significant in this connection that the textile machinery used to manufacture the several fibres is largely interchangeable, while a large part of textile output consists of fibre mixtures. Third, with the exception of a few skilled and specialised occupations, the different branches of the textile industry employ substantially a similar labour force. Fourth, the different textile fibres are, subject to limitations of price and fashion, directly competitive with one another. The most striking example of such competition is perhaps furnished by silk and rayon, but wool and cotton also compete as clothing fabrics, wool, cotton and silk as hosiery fabrics, jute and cotton as industrial fabrics, etc. At the same time, the several textile fibres are also complementary

Thus there has been a great tendency in recent years to produce composite fabrics, mixtures of wool/cotton, of wool/silk, silk/rayon, etc. In so far as the several textile fibres are both competitive and complementary, all branches of textile manufacturing become sensitive to the same influences, and common industrial problems are created.

### III

The textile industry, as was said above, is in a process of continuous change. But before considering the changes it has undergone in recent years and is still undergoing, it may be helpful to form a picture of what the industry is to day.

The most extensive system of world trade relations is presented by the cotton textile industry. But the countries which enter into this extensive system differ widely in the degree of their importance—as producers and consumers, as exporters and importers. Five countries (the United States, India, China, Egypt and Brazil) produce over 80 per cent. of the total world supply of ginned cotton, and supply the bulk of the raw cotton which enters into world trade. All cotton textile manufacturing countries—except the United States, China, Brazil, India, Mexico, the U S S R and a few others of minor importance—import practically all of their raw cotton. Here is the first link in the intricate chain of trading relationships: almost the entire world is dependent on five countries for raw cotton while these five countries are dependent on world manufacturing activity for the sale of their raw material.

Although cotton yarn is spun almost everywhere, only fourteen countries produce appreciable export surpluses. Of these countries, the most important exporters are the United Kingdom, Italy, Japan, China and Czechoslovakia, which together accounted for about 75 per cent. of the world total in 1935. Countries such as the United States, Germany, India, the U S S R, etc., which produce cotton yarn in very large quantities, use it chiefly in their own domestic weaving establishments. The finest counts of cotton yarn are spun in Western and Central Europe, mainly in the United Kingdom which has a large percentage of mule spindles, while capacity to spin lower counts by mass production methods (ring spindles) is concentrated largely in the Far East, India and the United States.

Weaving of cotton cloth is carried on in most countries at the same time, productive capacity is highly concentrated. In 1935

the eight largest manufacturing countries were the United States, Japan, the United Kingdom, India, the U S S R, Germany, France and Italy, these eight countries accounted for over 90 per cent of total world output. On the other hand, the export trade is centred in seventeen countries of which the largest exporters, in the order of volume in 1935, were Japan, the United Kingdom, France, Italy, the United States, India, Belgium, the U S S R, Czechoslovakia, the Netherlands, Germany and Switzerland. These twelve countries accounted for 98 per cent of the total world exports in that year. At the same time, the importing countries are worldwide. In the markets of final consumption, India, the Far East, Colonial Africa, Latin America, the Balkan and Near Eastern countries bulk very large. In the markets of intermediate consumption and of the improvement trade, the countries of Western and Central Europe are of greatest importance.

In general, all countries exporting cotton textiles are actual or potential competitors in all markets. This generalisation may, however, be qualified in two ways. First, there is a wide range within which the cotton cloth exports of different countries are not seriously competitive because of differences in kind (grey, bleached, printed) and quality (value per square yard or pound). Second, as a result of geographic and economic conditions, commercial policy, and tradition, particular groups of cotton cloth exporters compete with special severity in particular markets. Thus, Japan and the United Kingdom are close competitors in India, some of the British Dominions and Africa, Japan, the United States, Italy and the United Kingdom in Latin America, Japan and the United States in the Philippines, Germany, Czechoslovakia and Italy in the Balkans and the Near East, Switzerland, Austria and Czechoslovakia in specialised quality markets, and so on.

The international pattern of the wool textile industry, like that of cotton textiles, has its own special characteristics. The range of raw wool culture is even wider than that of raw cotton, sheep are raised for the wool clip on a large scale in about sixty countries. The world output of raw wool is largely concentrated, however, in the southern hemisphere and in the British Empire, although the United States and the U S S R are also major producers. Only five countries—Australia, Argentina, the Union of South Africa, New Zealand and Uruguay—supply the great bulk of the raw wool which enters world trade (over 85 per cent. of the total in 1935).

The finer qualities of merino wool, moreover, are supplied in largest measure by Australia and the Union of South Africa

About 90 per cent of the raw wool which enters into world trade is taken by seven of the main wool manufacturing countries—the United Kingdom, France, Germany, Japan, Belgium, the United States and Italy. Of all the major manufacturers, only the United States, the U S S R and Spain are practically self-sufficient as regards raw wool

The semi-manufactures of wool are tops and yarn. Production of wool tops is confined, for all practical purposes, to fifteen countries—the United Kingdom, France, Germany, the United States, Japan, Italy, Belgium, Australia, the U S S R, Czechoslovakia, Poland, Spain, Switzerland, Austria, Yugoslavia. Only seven countries, however, export wool tops in appreciable quantities: France, the United Kingdom, Belgium, Germany, Australia, Switzerland and Austria, the bulk of world exports being supplied by the first two

Some twenty countries produce wool yarn (on a mill basis) in appreciable quantities, of these countries, eleven export it in substantial amounts—the United Kingdom, France, Czechoslovakia, Germany, Belgium, Japan, Austria, Italy, Switzerland, the Netherlands and Sweden. Exports of wool yarn go largely to countries of Western and Central Europe (especially Germany, Belgium and the Netherlands), and in smaller volume to Asia (notably China and India), to Latin America (especially Argentina and Brazil), and to the Balkans and Near East (e.g. Rumania, Yugoslavia, Turkey)

The weaving of woollen and worsted tissues is carried on in almost all countries, but capacity to produce—measured by power looms as distinct from hand looms—is concentrated in Western and Central Europe and in the United States, in addition, Japan, Poland the U S S R, Argentina and Australia are important producers. About half of all woollen and worsted exports is supplied by the United Kingdom, the bulk of the remainder by other countries of Western and Central Europe, and to a much smaller extent by Japan

As in the case of cotton, so in that of wool, many of the channels of trade between importing and exporting countries are well defined. A large two-way trade in woollen and worsted tissues is carried on among all countries of Western and Central Europe both on the import and export side. Important in volume are also the exports from Western and Central Europe to the British Dominions, Latin America, India, the Far East, and the United States. In

general, world trade in woollens and worsteds serves consumers at higher levels of income and is influenced in its geographic distribution by climatic factors. The closest competition, on a world scale, is among the United Kingdom, France, Germany and Italy.

Much simpler than either cotton or wool textiles is the international pattern of the silk industry. Over 75 per cent of all cocoons are produced in Japan, the remainder chiefly in Korea, China, Italy, the U S S R and India. Capacity to reel raw silk is likewise highly concentrated in Japan, above all, and in China, Manchuria and India, together these countries account for over 90 per cent of total world output. Secondary producers of raw silk are the U S S R, Italy and France, and some of the Balkans and Near Eastern countries. Japan, China, Manchuria and Italy supply practically the entire export of raw silk, Japan alone supplies from two-thirds to three-fourths of total exports.

From 70 to 75 per cent of all raw silk imports are taken by the United States, the bulk of the remainder by France, Japan, the United Kingdom, India, Canada and Germany. By far the largest manufacturer of finished silk textiles is the United States, other important manufacturers are Japan, China, India, France, Italy, Switzerland, Germany and the United Kingdom. Export trade in silk tissues is confined mainly to Japan, France, Italy, and Switzerland. The import markets of Japan are largely in Asia, those of France, Italy and Switzerland are the United Kingdom, the United States, the British Dominions, Latin America, and Western and Central Europe.

Although rayon yarn is produced in some twenty countries, over 70 per cent of the total is manufactured in four countries—the United States, Japan, Italy and Germany—and another 20 per cent in the United Kingdom and France. The only other producers of consequence are Belgium and the Netherlands. Rayon yarn is largely manufactured for domestic use, less than one-fifth of the output enters world trade. Some thirteen countries export rayon yarn in quantity, of these Italy exports from one fourth to one-third of the world total. Also important as exporters are Japan, the Netherlands, France, the United Kingdom, Germany, Belgium and Switzerland. The largest market is composed of countries—China and India above all—which lack the chemical equipment to produce yarn although equipped with looms or knitting machines. On the other hand, some of the major producers of rayon yarn, notably Germany, are also large importers on balance.



Weaving of rayon and staple fibre goods is carried on in nearly forty countries, manufacturing capacity is nevertheless highly concentrated in Japan, the United States, Germany, the United Kingdom, Italy and France. In 1935 these six countries held over 80 per cent of the world's available supplies of rayon yarn and staple fibre. Japan is by far the most important exporter of rayon and mixed rayon tissues. Other exporters of consequence are France, Germany, the United Kingdom, the United States, Czechoslovakia, Switzerland and the Netherlands. Generally speaking, rayon piece goods are exported to much the same markets as cotton piece goods.

Flax, the raw material of the linen textile industry, is produced chiefly in the U S S R, the Baltic countries and Germany. Most of the flax entering world trade comes from the U S S R, other important suppliers are Poland, Lithuania and Latvia, and for the finest grades, Belgium. More than half of all flax exports are taken by the United Kingdom, most of the remainder by France, Germany, Czechoslovakia and Japan. The largest producers of linen goods are the Soviet Union, the United Kingdom, France, Germany, Poland, Czechoslovakia, and Belgium. By far the leading exporter of linen goods to world markets is the United Kingdom, a secondary group of exporters includes Belgium, Czechoslovakia and the U S S R, less important exporters are Germany, France and Italy. The United States is the leading import market.

The production and export of raw jute are practically a monopoly of India. Over half of the exports go to the United Kingdom, Germany and France, another fourth to the United States, Italy and Belgium, the remainder chiefly to Spain, Japan, Brazil, the Netherlands, China and Argentina. By far the largest spinners of jute yarn are India and the United Kingdom. Their exports of yarn go mainly to agricultural countries which use jute yarn to manufacture bags and sacks.

The chief producers of jute goods—bags, sacks, etc. - are India, the United Kingdom, a number of countries in Western and Central Europe and the United States, of importance also are some of the countries of Latin America (Argentina and Brazil). Exports, originating mainly in the United Kingdom and India, flow in largest measure toward North and South America and to the British Dominions.

#### IV

Although the production of and trade in textile raw materials, semi-manufactures and finished goods affect the economic fortunes of the whole world, such production and trade are of major importance to the economic life of some twenty countries

Of these twenty countries, the United States is by far the largest producer of raw cotton, second only to Australia as a producer of raw wool, and shares leadership with Japan as a producer of rayon yarn. At the same time, it supplies close to half of the raw cotton and is furnished with well over two-thirds of the raw silk entering into world trade. In the field of textile manufactures, the United States is by far the largest producer of cotton textiles, one of the two largest producers of wool and rayon textiles, predominates as a producer of silk textiles, and is one of the leading producers of jute textiles. Although the United States is a minor exporter of textile manufactures, it is the largest importing market in the world for cotton, wool, silk, rayon, linen, jute and hemp goods taken together. Finally, it is the largest consumer of all textile products taken together, both in absolute quantities and per capita.

Competing for second place on the list are the United Kingdom and Japan. Because of its deficiency in domestic supplies of textile raw materials, the United Kingdom is much the largest of all the import markets toward which the primary materials for textile manufacturing flow. As an exporter of textile manufactures, the United Kingdom leads by far in the finished products of wool and linen, shares leadership in the finished products of cotton and jute, and takes unchallenged first rank in the semi-manufactures of at least cotton and wool.

Japan, however, is almost an equally important focus of world trade. Like the United Kingdom, Japan possesses enormous manufacturing capacities in cotton, wool, silk and rayon. Japan must import all the textile raw materials, except silk, of the latter primary commodity Japan is the principal supplier to the rest of the world. Like the United Kingdom, Japan sends forth a tremendous stream of textile manufactures to the markets of the whole world: cotton and rayon tissues above all, silk and wool tissues as well. Unlike the United Kingdom—which is a major importing market for at least silk and woollen tissues—Japan is a negligible importer of finished textile manufactures.

Limitations of space make it impossible to summarise the world status of the textile industries of the other major textile countries Germany, Argentina, Australia, Belgium, Brazil, Canada, China, Spain, France, India, Italy, Mexico, the Netherlands (with the East Indies), Poland, Switzerland, Czechoslovakia and the U S S R. Each of these countries contributes an important share to the world output of one or more textile raw materials, or manufactures, or both, each has a considerable stake in the world trade in one or more textile raw materials, or manufactures, or both.

A few words concerning the economic network which binds together all these twenty countries will nevertheless help to render the present picture of the world textile industry more complete. First, all of the important textile manufacturing countries lack one, several, or all of the raw materials. The great textile industries of the world have thus been built up largely on the basis of imports of raw materials produced, to a measurable extent, in agricultural countries which are not themselves significant textile manufacturers. Second, there is a specific concentration of productive capacity for each textile fibre: capacity to manufacture cotton textiles is concentrated in the United States, Japan, the United Kingdom, India, China, Germany, the U S S R, France, Italy, Czechoslovakia and Poland, to manufacture wool textiles in the United States, the United Kingdom, France, Germany, the U S S R, Italy, Japan, Spain and Belgium, to manufacture silk textiles in the United States, France, Italy, Japan and China, etc.

Third, all textile exporting countries compete with one another, to a smaller or greater degree, in one or more market areas. The greatest competition is for the markets of the United States, the British Dominions, India, the Far East, Colonial Africa, Latin America and the Near East. The most important groups of competitors are Japan and the United Kingdom for cotton piece goods in practically all markets, Germany, France, Italy and the United Kingdom likewise in all markets for woollen and worsted tissues, France, Italy and Switzerland in the richer national markets for silk fabrics, Germany, Czechoslovakia, Austria and Italy for all textile products in the Balkans and the Near East, Germany, the United States, Italy, Japan and the United Kingdom for cotton piece goods markets throughout Latin America, etc. Although Central and Western Europe are markets of close competition for all textile manufactures, much of the trading in this area is complementary: it involves the movement of goods destined for or having undergone improvement.

V

The structure of the world textile industry to-day is markedly different from that of two decades ago. Great changes have taken place since the World War in the relative position of the countries which count most as textile producers and exporters or both, and in the relative importance of different markets. These changes are the result of basic influences which have been reshaping the industry for many years past, they have been accelerated and complicated, however, by the economic consequences of the World War and by the policies resulting from the industrial depression of 1929-1933.

In general, the changes in the textile industry as a whole, as well as in such special branches as cotton and wool, consist in the shifting of productive capacity from older to newer centres of production, and in the rise of new countries to dominant positions in world markets, largely at the expense of the older exporting countries. At the same time, the equilibrium of all exporting countries has been disturbed by the growth of textile manufacturing for the home market in a number of countries which formerly imported most or all of their textile requirements.

In the cotton textile industry, one of the most important developments is the progressive emergence in India of a factory textile industry which has come to be one of the most important in the world. The Indian cotton textile industry is concerned with the domestic market, exports, although not negligible, are far from important. India still has to import large quantities of cotton piece goods from the United Kingdom and Japan in order to satisfy domestic requirements.

Another important development is the spectacular rise of the cotton textile industry in Japan. This rise, beginning before the World War, was considerably accelerated by post-war readjustments, but took on renewed speed after 1931-1932. In the course of its rise, Japan has penetrated into and won for itself markets in countries such as British India, the Netherlands Indies, Colonial Africa and Egypt, formerly held entirely or largely by the United Kingdom, and has made great inroads into the markets of the Philippines, Latin America and many colonies, protectorates and mandated territories.

A third series of significant changes is related to the break-up of the Austro-Hungarian and Russian Empires, as a consequence

of the World War. The major result of this break-up, sharpened by post-war economic nationalism, has been to leave "stranded" textile industries in Czechoslovakia, Poland and Austria, stranded in the sense that the productive capacity of these industries is separated from the large markets which this productive capacity was originally designed to serve.

A fourth major development is the rapid growth of the U S S R to the position of one of the largest textile manufacturers in the world. As yet the Soviet Union is a minor exporter of cotton textiles, although considerable quantities are sent to Turkey, Iran and some markets of Colonial Africa.

A fifth development is the continuing rapid growth of cotton manufacturing in a number of Latin-American countries (notably Brazil), and at a very rapid rate in recent years in Greece, Bulgaria, Rumania, Yugoslavia and a few other small countries.

A sixth important change is the continuing shift of cotton mills, in the United States, from New England to the Southern States, and, in India, from Bombay to up-country districts.

In the wool textile industry, significant structural changes may also be noted. Although the United Kingdom still retains its predominance as a manufacturer and exporter of wool textiles, France, Italy, Germany, Czechoslovakia and some other countries have lost much ground as exporters of woollens, largely as a result of their loss of the markets of the United Kingdom due to the effects of devaluation and new protective policies. Another important change has been the recent rapid rise, in Japan, of a wool textile industry directed largely toward the export market. Another change now making considerable headway is the growth of wool textile industries in such raw wool producing countries as Australia and Argentina. Significant also are the changes taking place in Italy and Germany, where wool and cotton textile activity is encountering a scarcity of raw materials connected with problems of foreign exchange control.

With regard to the other branches of the textile industry, a few remarks must suffice. In silk textiles, the recent growth of manufacturing in Japan and the United Kingdom is particularly noteworthy. This fact has already created export difficulties for France, Italy and Switzerland. Production and consumption of rayon continued to move upward at a rapid rate throughout the depression years. How far the continued growth in the use of rayon has been achieved at the expense of the natural textile fibres is a moot and complicated

question. Although it cannot be doubted that much of the rayon market has been conquered, at least for the time being, at the expense of other fibres, the growing use of rayon mixtures has been an important compensation, particularly for cotton mills. Finally, jute manufacturing and the production of linen both manifest tendencies to spread towards new centres.

Among the important factors influencing the recent shifts in the world textile industry have been national programmes of industrialisation, currency devaluation, policies of economic nationalism, differential labour costs, and technological changes. As for labour costs, almost all new centres of the textile industry have profited from an abundant supply of low-wage labour due to the overflow of population from agricultural areas suffering from the pressure of human beings against the soil. The general progress of technology is exemplified by the increasing use of ring spindles, higher mechanisation and modernisation of plant, in all of which the newer countries have definite advantages. As for the successful exploitation of new textile fabrics, the growth of the rayon industry is a case in point. In brief, the speed and extent of the structural changes in the world textile industry have been due to (1) the financial ease with which mechanical equipment necessary for weaving at least can be set up, (2) the relative simplicity of industrial technology in textile manufacturing, (3) the abundance of necessary labour, and (4) the commercial policies in vogue since the World War and accentuated as a result of the depression.

## VI

The shifts and changes described above have been accompanied by a struggle for markets, both national and foreign, which is still going on. Every textile manufacturing country is trying to retain or acquire as large a share as possible of the world's textile sales. Each country is trying to make use of whatever competitive advantages it has and to strengthen its position as producer and seller by all special means at its command.

One of the most important methods used in the competition for textile markets is that of regulating access to home or outside markets in favour of particular countries to the exclusion of others. In many, if not all countries, domestic textile industries are sheltered as regards the home market by protective tariffs. Aside from tariffs, quota systems more or less rigidly limiting the volume

of permissible imports are in force in a number of countries. Where quotas are not in force *de jure*, the same effects are aimed at by means of exchange control. In some cases, quota systems and exchange control are superimposed on bilateral trading agreements, so as to discriminate between different countries. For a clear picture of present-day conditions in the world textile industry, it is necessary to visualise the application of these policies in the major textile countries.

The national or empire market enjoyed by Japanese textile mills is limited compared with that enjoyed by mills in the United Kingdom or the United States. Japanese textile mills, moreover, suffer from exclusion from foreign markets. Thus quota systems for the benefit of British undertakings are in force in most of the Crown Colonies, India maintains preferential tariffs together with a restriction, by voluntary agreement, of the amount of textile imports from Japan, the Netherlands has recently begun to apply quota restrictions directed primarily against Japanese textile imports into the Netherlands Indies, Japan has agreed with the United States to restrict the volume of her exports to the Philippines, while the commercial policy of France has converted the French colonies into a domain largely reserved for textile mills in the motherland.

The case of the United Kingdom is in many ways different. With the scrapping of traditional free trade principles and the signing of the Ottawa agreements in 1932, the preferential markets of the British textile industry became more extensive than ever before. In 1934, moreover, the Crown Colonies were more or less reserved in favour of the mother country by virtue of import quotas, these restrictions were intended primarily to benefit Lancashire cotton mills against Japanese competition. On the other hand, the British cotton textile industry must meet high tariff hurdles, quotas and exchange restrictions, in attempting to penetrate some of its principal markets. Thus, although the United Kingdom enjoys tariff preferences in India and in the Dominions, the preferences are contingent upon tariff rates designed to furnish a substantial amount of protection to home mills as against their Lancashire or Yorkshire competitors. This is particularly true of India as regards cotton textiles, and of Australia and Canada with respect to woollen goods. In the United States, an important outlet for the most expensive grades of British textiles, protective tariffs for the benefit of domestic cotton and wool mills are an established policy of long standing. As for the markets of Latin America, the French colonies, Western and Central

Europe, the Balkan and Near Eastern countries, they all abound in high protective duties, quota limitations, rigid foreign exchange controls and bilateral agreements. On balance it is arguable whether the British textile industries do not suffer as much by exclusion from the protected markets of other countries as they gain by the advantages which they enjoy in their preferential or sheltered markets.

Of all textile manufacturing countries, the United States possesses by far the largest domestic market. This market is sheltered, not by import quotas, exchange control or bilateral agreements, but by high tariff duties. As a rule none but the very highest grades of British, French and Swiss fabrics find it possible to pass over these tariff barriers, although in recent years imports of cheap Japanese cotton goods have grown rapidly. The United States textile producers also enjoy certain preferential advantages in the Philippine Islands and in Cuba. The remainder of the market for American textile exports is to be found in Latin America. Most of the latter countries maintain foreign exchange control, import quota restrictions and bilateral agreements which favour competitors of the United States, such as Germany, Italy and the United Kingdom. Furthermore, many of these countries, notably Brazil and Mexico, have been engaged on their own account in tariff protection with a view to establishing domestic textile industries.

India is also a country where textile mill capacity has been built up with a view almost entirely to the internal market. In recent years, at least, Indian textile mills, particularly cotton mills, have enjoyed tariff protection, not only against Japanese imports, but also against imports from the United Kingdom. Although the United Kingdom enjoys a preferential tariff, textile imports from Lancashire still have to pay fairly substantial duties before they can enter the Indian market. As for Japanese imports, they not only pay heavier duties, but their total volume is regulated in accordance with a trade agreement, whereby Japanese piece goods are traded, so to speak, in exchange for Indian raw cotton. In terms of population, the Indian market is larger than any other except China. In terms of purchasing power, however, it suffers from serious limitations which cannot be overcome except by an increase in national wealth and income. Nevertheless, India is still to-day, as in the past, the world's largest single market for the cheaper varieties of cotton piece goods. Exports do not bulk large in the total marketing of Indian fabrics, although the absolute volume of



trade with Ceylon, Afghanistan and British colonies in Africa is substantial

The U S S R is another country where a large plant and equipment for manufacturing textiles have been built up almost entirely on the basis of the home market which has very large potentialities

China also possesses a large and growing textile industry, orientated towards the domestic market. Even more than in the case of India, the present possibilities of the Chinese market are limited by the extreme poverty of most of the population. For what the present market is worth, it is a tariff-sheltered market for Chinese mills (many of the most important mills, it must be remembered, are operated by Japanese companies, others by English). Export trade is of little significance, except in cotton yarn. In China, as in India, the expansion of domestic manufacturing capacity has precipitated a drastic curtailment of imports, to the detriment of the United Kingdom, Japan and other former suppliers of yarn and cloth.

The textile mills of France enjoy access to a sheltered market of the first order of importance. To begin with, there is the home market of France, where high tariff duties and a restrictive quota system both apply. Then there are the French colonies where the commercial policies in force make it very difficult for any but French textiles to be marketed. On the other hand, the French textile industries are very definitely export industries, and have been very hard hit in recent years, particularly as regards wool and silk goods, as a result of the economic crisis and of commercial and monetary policies the world over. France has been able to save her export trade, particularly in cotton cloth, mainly by developing her colonial markets.

The domestic markets of Germany and Italy are sheltered for the benefit of home textile mills by means of an elaborate control of foreign exchange, combined with bilateral trade agreements. In many foreign markets, moreover, exports from Germany and Italy enjoy substantial advantages, thanks to the policies mentioned above. On the other hand, in some of the countries where Germany and Italy enjoy advantages—Latin America, the Balkans, the Near East—programmes aiming at the establishment of national textile industries are being vigorously pursued. At the same time, the textile industries of Germany and Italy have been seriously hampered by the difficulty,\* attributable mainly to foreign exchange restrictions, of obtaining adequate supplies of

raw materials at reasonable cost. In both countries, imports of raw materials have been restricted and efforts made to develop synthetic textile fibres, while the very bilateral agreements which open up export markets for finished textiles often necessitate the purchase of raw materials, usually of inferior grades, at prices substantially above world market quotations.

## VII

Protective tariffs, quotas, and preferential arrangements have undeniably given individual countries special advantages in the international trade in textiles. On the other hand, the competitive advantages thus bestowed have been offset, in whole or in part, by other factors in international competition, such as comparative currency devaluation, commercial organisation, capital charges, machine efficiency, and labour costs.

Currency depreciation, which was an extremely important influence between 1931 and 1933, has become less and less important since. Undoubtedly some countries, especially Japan, have benefited from efficient organisation, lower shipping charges, more strategically timed purchases of raw materials, more intensive use of available plant and equipment, more sensitive responses to shifts and changes in demand. But the most important factors in the international competition for textile markets have been currency devaluation and differential labour costs. Japan in particular owes its expansion in textile exports to these factors; they have enabled her not only to win and hold older markets, but also to tap and exploit what might have otherwise remained a latent demand among low-income groups.

## VIII

While labour costs are important from the economic point of view as elements in total production costs, and thus as determining factors in the competitive position of individual countries, the labour aspects of the textile industry are even more important from the human and social point of view. From its very beginnings, the textile industry has presented special problems for the men, women and children whom it employs. The structural changes and competitive struggles described above have greatly aggravated the labour problems of the industry in all countries.

Owing to various technical and social-economic factors, the labour force attached to the textile industry is everywhere characterised by unusually high percentages of women, young persons and semi-skilled workers. For example, nearly one-fourth of the textile workers in the United Kingdom are under 21 years of age, while in Japan almost half are less than 20 years old.

This special composition of the labour force in the textile industry has an important bearing on wage rates and earnings. In general, despite some exceptions, average hourly wage rates are lower for the textile industry than the corresponding national averages for all industries. Both women and men generally receive less per hour as textile workers than as workers in manufacturing taken as a whole. The same is more or less true of weekly earnings, though they vary in the several branches of the industry.

As compared with other industries in the same country, textile manufacturing is generally a low-wage industry, whether low wages be taken to signify relatively low wage rates, relatively low weekly earnings, or both. As between different textile countries, differences in wage rates are very large. When the wages paid in different countries are measured on a common gold basis, the textile countries fall into three main groups: (1) a "low wage" group including China, Japan and India, (2) a "medium" wage group including Central and Western Europe, and (3) a "high wage" group composed of the United States and Canada. Within each group there are important differences as between individual countries.

The international variations in wage rates are the result in part of differences in the specific productivity of textile workers and of the general level of productivity in different countries. In part, they are attributable to differences in the composition of the labour force, in collective bargaining strength, in the degree of State protection, etc.

Hours of work are closely related to wages, from the point of view of production costs as well as of total earnings and standards of living. The normal statutory hours of work in different countries vary considerably.

In general, the textile producing countries may be divided into three groups, according to whether the regulation normal hours of work are above, equal to, or lower than 48 in the week. The first group of countries in which the normal hours exceed 48 in the week includes China, India and Japan. The second group of countries in which normal hours are 48 in the week includes Austria, Belgium

Brazil, Canada, Czechoslovakia, Estonia, Germany, Great Britain, Mexico, the Netherlands, Poland, Rumania, Spain, Sweden and Switzerland. The third group includes countries in which the normal hours are less than 48 in the week, such as Australia with 44 hours, France with 40 hours, Italy 40 hours, New Zealand 40 hours, the United States 40 hours, and the U S S R 7 hours a day.

There are also large differences between countries as to the interpretation of what normal hours are, as to the time allowed for cleaning spindles and looms, as to the right to compute hours over a period of several weeks or months in the year, as to the kind and extent of exceptions allowed for overtime purposes, as to the payment for overtime, etc. Of special importance are the differences in different countries with regard to work in shifts. Of considerable importance also as affecting the total number of working hours in the course of the year are the provisions in different countries with regard to the weekly rest, to the number of public holidays and to the annual holidays with pay which are legally provided for. In view of the fact that the textile industry employs a large number of women, of some importance also are the regulations in different countries with regard to maternity leave and other measures taken to protect the health and well-being of women, such as the regulations concerning night work.

In general, in recent years, partly as a result of the depression, partly for other reasons, the tendency has been for the number of hours actually worked in the industry to decrease. Again, the countries for which data are available may be arranged in three groups according to hours actually worked. In the first group are China, Japan, and India, where the working day ranges between  $8\frac{1}{2}$  and  $11\frac{1}{2}$  hours. The second group includes Austria, Sweden, Switzerland, and the United Kingdom, with a working week of between 45 and 48 hours. The third group includes Germany, the United States, France, Italy, the U S S R and Poland where the working week is 40 hours or under.

Conditions of labour in the textile industry are characterised not only by relatively low wages but also by irregular employment, considerable short-time work, and extensive total unemployment.

The available statistics, imperfect as they are, clearly show that there has been considerable unemployment in the textile industry in recent years. A large part of this unemployment has undoubtedly been due to the economic depression. In fact, the figures available do not give a complete picture of the effects of the

depression as reflected in unemployment in the textile industry, for they do not show except in a few countries the existence of short-time work or partial unemployment which seems to have been more widespread in the textile industry than in industry as a whole. Cotton textiles, it would appear, suffered much more from unemployment than other branches of the industry.

Aside from cyclical unemployment, the textile industry has experienced a certain amount of technological unemployment in many countries. Mechanical improvements in the textile industry in recent years have been making rapid headway as in other industries. Automatic looms have been replacing non-automatic looms, high-speed spindles have supplanted low speed spindles, etc. Moreover, work loads have shown a tendency to increase and the pace of manufacturing operations a tendency to accelerate, with the result that textile workers everywhere have been complaining of the "speed-up" and the "stretch-out." Some of the unemployment in the cotton textile industry has been partially offset in particular countries by the expansion of newer branches of the industry, such as rayon. The employment of textile workers has also been affected by the structural changes described previously.

## IX

As a result of the structural changes referred to, there have come into being in a number of countries and regions—notably in Lancashire in the United Kingdom, and in New England in the United States—"distressed areas" or "stranded communities" characterised by unemployment, irregular earnings, and declining standards of living. On the other hand, some of the countries and regions in which the spread of the textile industry is largely responsible for the above dislocations, show many of the features of a first rapid industrialisation, low wages, long hours, very high employment of women and young persons. In short, the struggle for textile markets has become accentuated to such an extent as to threaten labour standards the world over, and world economic relations in general.

One proposed solution for the ills of the world textile industry consists in schemes for curtailing productive capacity. Aside, however, from "distressed areas" which may be regarded as regions of excess capacity, the major problem of the textile industry is hardly one of "over-production." The consumption of textile

goods in many countries in all parts of the world is still much below what may be regarded as a reasonable minimum, and below what fairly well paid workers in a few countries already are in the habit of consuming. All the available evidence shows that as incomes of the workers increase, their purchases of textile goods for personal and household use also increase. In short, the potential demand for textile goods is to-day, as in the past, considerable.

## X

National action with regard to labour standards in the textile industry calls in large measure also for international action. From the economic as well as from the social point of view the problem is the same. International co-operation is required in a common programme which will promote the orderly development of the textile industry in different countries and secure decent living standards for the workers in the industry.

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